MEMORANDUM

To: Industrial Economics, Inc.

From: Lourdes Mena, Division Manager of Classification and Recovery, Florida Ecological Services Office; and Earl Campbell, Project Leader, Pacific Islands Fish and Wildlife Office

Date: September 30, 2022

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Subject: Incremental Effects Memorandum for the Economic Analysis of the Proposed Rule to Designate Critical Habitat for Five Distinct Population Segments of the Green Sea Turtle

The purpose of this memorandum is to provide information for use in conducting an economic analysis of the proposed designation of critical habitat (terrestrial only, to include nesting and basking areas) for five distinct population segments (DPSs) of green sea turtle (*Chelonia mydas*) (herein after referred to as green turtle). The five DPSs include: the North Atlantic DPS (portions of the Atlantic and Gulf of Mexico Shorelines of the Continental U.S. and Puerto Rico), the South Atlantic DPS (U.S. Virgin Islands), the Central North Pacific DPS (Hawai‘i and outlying islands), the Central South Pacific DPS (Palmyra Atoll and American Sāmoa), and the Central West Pacific DPS (Guam and the Northern Mariana Islands).

Section 4(b)(2) of the Endangered Species Act (Act) requires us to consider the economic, national security, and other impacts of designating a particular area as critical habitat. We may exclude an area from critical habitat if it is determined that the benefits of exclusion outweigh the benefits of inclusion unless the exclusion will result in the extinction of the species. In part to comply with section 4(b)(2) of the Act and consider the economic impacts of a proposed critical habitat designation, we have an economic analysis conducted that describes and monetizes, where possible, the probable economic impacts of the proposed regulation. The data in the economic analysis may be used in the discretionary balancing evaluation under section 4(b)(2) of the Act to consider any area for exclusion from the final designation.

Determining the economic impacts of a critical habitat designation involves evaluating the “without critical habitat” baseline scenario versus the “with critical habitat” designation scenario, to identify those economic effects expected to occur solely due to the designation of critical habitat for a species, and not from the listing of that species (or in this case five separate DPSs of the green turtle) under the Act. Economic effects solely due to the critical habitat designation equal the difference, or increment, between these two scenarios, and include both: (1) The economic impacts that could result from recommended changes to Federal agency actions when it is determined that the effects of such actions would result in destruction or adverse

modification of the designated critical habitat, and (2) the costs of increased administrative efforts for Federal agencies that result from evaluating effects of their actions on the designation. Specific measured differences between the baseline scenario and the designation scenario may also include, but are not limited to, the economic effects stemming from project modifications and administrative efforts implemented by State and local governments or private third parties in response to designation of critical habitat. These are the incremental effects that serve as the basis for the economic analysis.

What follows in this memorandum is the relevant information we will be providing the contractor conducting the incremental effects economic analysis for the terrestrial (nesting and basking areas) of green turtle.

I. INTRODUCTION

Section 7(a)(2) of the Act requires Federal agencies to consult with the USFWS to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize continued existence of any endangered or threatened species or result in the destruction or adverse modification of its designated critical habitat. Section 7's implementing regulations, at 50 CFR 402, lay out the process for determining when the need for consultation is triggered. Essentially, if a listed species or designated critical habitat "may be present" in the action area of a project (i.e., all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the action), the Federal agency must conduct a biological assessment to evaluate any effects their action may have on the species or critical habitat. If the proposed action "may affect" either the listed species or critical habitat, consultation with the USFWS is required. Consultation may be informal (the proposed action may affect but is *not* likely to adversely affect listed species or critical habitat) or formal (the proposed action may affect and *is* likely to adversely affect listed species or critical habitat).

For the purposes of evaluating the incremental economic effect of designating critical habitat—the difference between the baseline scenario and the designation scenario—it is necessary to evaluate whether there are any situations for which economic impacts could occur solely due to the critical habitat designation (i.e., not due to the species being listed). There are two scenarios for which this outcome could occur: (1) Critical habitat may be present in the action area, but it is determined that the listed species may not be present; and (2) both the listed species and critical habitat may be present in the action area, it is determined that the action is likely to adversely affect critical habitat to such an extent that protective measures are deemed necessary to avoid destruction or adverse modification, and these measures are different than any protective measures deemed necessary for addressing effects to the listed species (e.g., protective measures needed to address effects to the species determined to jeopardize its continued existence).

(1) Only Critical Habitat is Present in Action Area

While this scenario can occur when the U.S. Fish and Wildlife Service (USFWS) designates unoccupied critical habitat (i.e., the species is not present, neither continuously nor occasionally), it is significantly less likely to occur in occupied critical habitat. However, the USFWS recognizes that the "geographical area occupied by the species" at the time of listing as stated under section 3(5)(A)(i) of the Act is the geographical area which may generally be delineated around the species' occurrences, as determined by the Secretary (i.e., range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (e.g., migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals). Accordingly, the species may not be continuously present within every acre of its known range. Thus, the "geographical area occupied by the species" can, depending on the species at issue and the relevant data available, be defined on a relatively coarse scale.

As a result, it is possible that in occupied critical habitat, a listed species may *not* be present within the bounds of an action area at the time the proposed action is implemented. In such a situation, if the proposed action may affect critical habitat, it is possible that consultation (either formal or informal) would be required solely as a result of the effects to that critical habitat. However, consultation is based on evaluating the "may be present" and "may be affected" thresholds simultaneously. As described above, the geographical range of a species includes resources or conditions the species needs for some aspect of its life history, which may only be used sporadically. So while it is possible that a species may not be present within an action area at the time of a proposed action, should that action affect the resources or conditions the species depends on when it is present (which would be the case if the action would affect critical habitat), such an action also "may affect" the species and consultation under the jeopardy standard would be required, in addition to assessing the impacts to critical habitat.

In conclusion, the incremental effect of economic impacts arising solely as a result of a critical habitat designation is likely to occur with section 7 consultations for proposed actions in unoccupied critical habitat, as well as in rare cases of section 7 consultations where a project's impacts may modify a portion (feet, miles, acres, etc.) of occupied critical habitat, but it is determined that the proposed action will have no effect whatsoever to the listed species itself (i.e., species is not present and no effect to any of the resources the species depends on).

(2) Different Protective Measures for Avoiding Destruction/Adverse Modification

As noted above, Federal agencies are required under section 7 to consult with the USFWS to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of its designated critical habitat. If during section 7 consultation it is determined that a proposed Federal action is likely to result in a finding of

either jeopardy to the species or destruction/adverse modification of critical habitat, or both, the USFWS must develop Reasonable and Prudent Alternatives (RPAs). RPAs are alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technically feasible, and that the Director believes would avoid the likelihood of jeopardizing the continued existence of the species or result in the destruction or adverse modification of critical habitat.

Jeopardizing the continued existence is defined at 50 CFR 402.02 as "…to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." Destruction or adverse modification is defined as "…a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." These are two different standards under the Act (jeopardy to the species and destruction or adverse modification to critical habitat). The USFWS must assess the project's effects to both the species and the designated critical habitat, and arrive at separate and individual effect determinations for both. Just as the determination of jeopardy under section 7(a)(2) of the Act is made at the scale of the entire listed entity, a determination of destruction or adverse modification is made at the scale of the entire critical habitat designation. Put another way, the determination of "destruction or adverse modification" is based on whether the action will appreciably diminish the value of the critical habitat as a whole, not just in the action area.

In situations requiring RPAs, economic impacts can potentially arise from subsequent project modifications to avoid jeopardy or destruction/adverse modification. While it is conceivable that scenarios could occur whereby a proposed action could result in a determination of jeopardy for the species without also resulting in a determination of destruction/adverse modification for critical habitat (e.g., a species is directly impacted without any adverse effects to its essential habitat), the reverse is significantly less likely. Actions whose adverse effects to the essential habitat needs of a species reach a level of destruction/adverse modification of the designated critical habitat will therefore most likely have a concurrent significant level of adverse effects to the species itself. That is, effects reaching the scale and magnitude of destroying or adversely modifying the critical habitat essential to the conservation of the species would likely also reach the scale of jeopardizing the continued existence of the species. This is true even for critical habitat designations that include unoccupied units.

In conclusion, it is likely rare that economic impacts from RPA-directed project modifications would arise solely as a result of a critical habitat designation (i.e., an incremental effect), because any such RPAs would typically be the same as those needed to avoid jeopardy of the species. However, economic impacts arising solely as a result of a critical habitat designation can result from project modifications developed during the consultation process to avoid modifying

designated critical habitat, because the project's effects that can be described as modifying designated critical habitat do not automatically equate to a section 7(a)(2) determination of Destruction or Adverse Modification. Put another way, project modifications can be developed during the consultation process regardless of whether a jeopardy or destruction/adverse modification determination is made, and such project modifications could vary under each standard. The information provided below is intended to identify the possible differences for the green turtle under the different section 7 standards for jeopardy to the species and destruction or adverse modification of critical habitat.

II. BACKGROUND

A. Green Turtle Summary Description

The green turtle grows to a maximum size of about 3.28 feet (ft) (1 meter (m)) in shell length and a weight of 441 pounds (200 kilograms). It has a heart-shaped shell, small head, with single-clawed flippers. The carapace has five vertebral scutes, four pairs of costal scutes, and 12 pairs of marginal scutes. The head has a single pair of elongate prefrontal scales, four postorbital scales behind each eye, both of which are distinguishing characteristics that set this species apart from other hard-shell sea turtles. Green turtles have a lower jaw-edge that is coarsely serrated, corresponding to strong grooves and ridges on the inner surface of the upper jaw (Carr 1952, p. 346; Pritchard and Trebbau 1984, pp. 283–285; Hirth 1997, pp. 6–8). The term "green" refers not to the external coloration, but to the color of the turtle's subdermal fat. The carapace of adult green turtles is light to dark brown, sometimes shaded with olive, with radiating wavy or mottled markings of a darker color or with large blotches of dark brown (Carr 1952, p. 348). The carapace coloration changes as the turtle grows from a hatchling to an adult. The dorsal coloration of the green turtle likely has adaptive significance as camouflage from chief predators while the turtle rests motionlessly on the bottom amongst coral and other benthic substrate. The adult plastron ranges from yellowish to orange, although in the East Pacific form there is considerable grayish and charcoal pigment. All hatchling green turtles have a black dorsal surface and a white ventral surface.

The green turtle has a circumglobal distribution, occurring throughout tropical, subtropical waters, and, to a lesser extent, temperate waters. Their movements within marine environments are not fully understood, but it is believed that green turtles inhabit coastal waters of over 140 countries (Groombridge and Luxmoore 1989, entire). Green turtles nest on sandy, ocean-facing mainland and island beaches (Hirth 1997, pp. 16–24). Although specific characteristics vary between rookeries, green turtle nesting beaches tend to have intact dune structures and native vegetation (Ackerman 1997, p. 84). Nests are typically laid at night at the base of the primary dune (Hirth 1997, p. 30; Witherington et al. 2006, p. 93).

Hatchlings emerge from their nests *en masse* almost exclusively at night and presumably use decreasing sand temperature (i.e., nighttime) as a cue (Hendrickson 1958, pp. 513–514; Mrosovsky 1968, entire). Immediately after hatchlings emerge from the nest, they begin a period of frenzied activity. During this active period, hatchlings, or neonates (newborns) move from their nest to the surf, swim and are swept through the surf zone, and continue swimming away from land for approximately 20 to 30 hours (Carr and Ogren 1960, pp. 23–24; Carr 1962, pp. 364–365; Carr 1982, p. 22; Wyneken and Salmon 1992, p. 482; Witherington 1995, p. 154).

Upon leaving the nesting beach and entering the marine environment, post-hatchling green turtles begin an oceanic juvenile phase during which time they are presumed to primarily inhabit areas where surface waters converge to form local downwellings, resulting in linear accumulations of floating material, especially *Sargassum* sp. (brown macroalgae/seaweed). This association with downwellings is well documented for loggerheads, as well as for some post-hatchling green turtles (Witherington 2002, p. 844; Witherington et al. 2006, p. 78; 2012, entire). The smallest of oceanic green turtles associating with these areas are relatively active, moving both within *Sargassum* sp. mats and in nearby open water, which may limit the ability of researchers to detect their presence as compared to relatively immobile sea turtles (Smith and Salmon 2009, p. 9; Witherington et al. 2012, pp. 2–3).

Oceanic-stage juvenile green turtles originating from nesting beaches in the Northwest Atlantic appear to use oceanic developmental habitats and move with the predominant ocean gyres for several years before returning to their neritic foraging and nesting habitats (Musick and Limpus 1997, pp. 140–142; Bolten 2003, p. 66). Larger neonate green turtles (at least 5.9–10 inches (in) (15–26 centimeters (cm)) straight carapace length (SCL)) are known to occupy *Sargassum* sp. habitats and surrounding epipelagic waters, where food items include *Sargassum* sp. and associated invertebrates, fish eggs, insects, and debris (Witherington et al. 2012, pp. 11–15).

The neritic juvenile stage begins when green turtles exit the oceanic zone (beyond the continental shelf) and enter the neritic zone (i.e., the relatively shallow part of the ocean above the drop-off of the continental shelf) (Bolten 2003, p. 66). The age at recruitment to the neritic zone likely varies with individuals leaving the oceanic zone over a wide size range (summarized in Avens and Snover 2013, entire). Using skeletochronology, Goshe et al. (2010, p. 1,725) estimated the duration of the oceanic juvenile stage to be between 1 and 7 years (mean = 3, SD = 1.6) in the northwestern Atlantic, with juveniles recruiting to neritic habitats over a size range of 7.5–12 in (19–30 cm) SCL (Mendonça 1981, pp. 448–450; Goshe et al. 2010, entire).

Most green turtles spend most of their lives in coastal foraging grounds. These areas include shallow waters within both open coastline and protected bays and lagoons. In addition to coastal foraging areas, oceanic habitats are used by oceanic-stage juveniles, migrating adults, and, on some occasions, by green turtles that reside in the oceanic zone for foraging. Despite these uses

of the oceanic zone by green turtles, little is known about how oceanography affects juvenile survival, adult migration, and prey availability.

Threats Affecting the Green Turtle and its Habitat

For green turtle critical habitat in the terrestrial environment, we have grouped the primary threats that may impact the habitat, and thus may require special management considerations or protection, into 12 categories (and described in detail in Enclosure 1):

- Climate change (includes sea level rise);
- Recreational beach use, including human presence (e.g., beaches allowing dogs and special events) and beach cleaning;
- Beach driving, including essential and nonessential off-road vehicles, all-terrain vehicles, and recreational access and use;
- Entanglement from nonnative vegetation and beach obstructions (e.g., recreational beach equipment and debris)
- Beach sand placement activities, including beach nourishment, beach restoration, inlet sand bypassing, dredge material disposal, dune construction, emergency sand placement after natural disaster, berm construction, and dune and berm planting;
- In-water and shoreline alterations (artificial in-water and shoreline stabilization measures (e.g., in-water erosion control structures, such as groins, breakwaters, jetties), inlet relocation, inlet dredging, nearshore dredging, and dredging and deepening channels);
- Coastal development, including residential and commercial development and associated activities such as beach armoring (e.g., sea walls, geotextile tubes, rock revetments, sandbags, emergency temporary armoring); and activities associated with construction, repair, and maintenance of upland structures, stormwater outfalls, and piers;
- Artificial lighting, including direct and indirect lighting, skyglow, and bonfires;
- Beach erosion, including erosion due to aperiodic, short-term weather-related erosion events, such as atmospheric fronts, northeasters, tropical storms, and hurricanes;
- Habitat obstructions, including tree stumps, fallen trees, and other debris on the beach, beach chairs and recreational equipment, nearshore sand bars, and ponding along beachfront seaward of dry beach; beach cleaning;
- Natural and human-caused disasters and response to those disasters, such as oil spills, oil spill response including beach cleaning and berm construction, and debris cleanup after natural disasters; and
- Military testing and training activities, including troop presence, pyrotechnics and nighttime lighting, vehicles and amphibious watercraft usage on the beach, helicopter drops and extractions, live fire exercises, and placement and removal of objects on the beach, and unexploded ordnance management.

While threats to green turtles are similar in the Atlantic and the Pacific, some differences exist. In the North Atlantic DPS, large scale beach renourishment projects occur frequently in most beaches along the Florida coast though they are conducted infrequently in Puerto Rico, with no activities occurring in proposed green turtle critical habitat segments. In the South Atlantic DPS and the Pacific DPSs, beach renourishment projects occur infrequently as well. Also, in the North Atlantic DPS, mechanized beach cleaning is quite common along the Florida coast, and uncommon in Puerto Rico. Large scale mechanized beach cleaning has occurred in Puerto Rico associated to hurricane debris management such as after Hurricane María in 2017. The same is true for the South Atlantic DPS regarding mechanized beach cleaning, while this practice does not occur in the Pacific DPSs.

Draft Proposed Critical Habitat

In total, approximately 8,870 acres (ac) (3,590 hectares (ha)) in 101 units are being proposed for designation as critical habitat for the green turtle. The proposed critical habitat designation includes lands under Federal ownership (2,170 ac (877 ha); 24 percent); State, Territory, or Commonwealth ownership (2,344 ac (948 ha); 26 percent); local government (675 ac (275 ha); 8 percent); private/other (e.g., non-governmental) ownership (2,893 ac (1,168 ha); 33 percent); and uncategorized[1] (792 ac (320 ha); 9 percent). No lands are under Tribal ownership. All areas we propose to designate as critical habitat are occupied by green turtles and occur within the current known range of the species in each DPS. Proposed critical habitat acreage and ownership[2] for each DPS is as follows:

North Atlantic DPS—5,974 ac (2,418 ha); 33 units

- 1,177 ac (475 ha) Federal; 1,727 ac (699 ha) State or Commonwealth; 640 ac (261 ha) local government; and 2,430 ac (981 ha) private/other

South Atlantic DPS—117 ac (47 ha); 8 units

- 47 ac (19 ha) Federal and 71 ac (28 ha) Territory

Central North Pacific DPS—2,233 ac (904 ha); 31 units

- 907 ac (367 ha) Federal; 466 ac (189 ha) State or Territory; 35 ac (14 ha) local government; 411 ac (166 ha) private/other; and 415 ac (168 ha) uncategorized

Central South Pacific DPS—242 ac (98 ha); 6 units

- 17 ac (7 ha) Federal; 15 ac (6 ha) private/other; and 211 ac (85 ha) uncategorized

Central West Pacific DPS—304 ac (123 ha); 23 units

- 22 ac (9 ha) Federal; 79 ac (32 ha) Territory (Guam) and Commonwealth (Commonwealth of Northern Mariana Islands (CNMI)); 37 ac (15 ha) private/other; and 166 ac (67 ha) uncategorized

[1] An ownership that is classified as uncategorized refers to lands where the landowner(s) could not be determined.
[2] Land ownership values may not sum with total ownership values due to rounding.

B. Physical or Biological Features

The physical or biological features (PBFs) essential to the conservation of green turtles are fully described in Enclosure 2 and summarized below:

(1) Extra-tidal or dry sandy beaches from the mean high water line—the line on a chart or map that represents the intersection of the land with the water surface at the elevation of mean high water (National Oceanic and Atmospheric Administration (NOAA) Fisheries 2022, p. 12)—to inland areas of beach containing features, described herein, supporting the greatest aggregation of nesting for the DPSs or serving as internesting habitats with the greatest aggregation of nesting for the DPSs, and that are well distributed within each DPS and representative of total nesting within the DPS. These beaches include:

(a) Suitable nesting beach habitat that has (i) relatively unimpeded wet and dry sand or nearshore access areas from the ocean to the beach for nesting females and from the beach to the ocean for both post-nesting females and hatchlings and (ii) dryer sand areas located above mean high water in the supralittoral zone to avoid being inundated frequently by high tides.

(b) Sand that (i) allows for suitable nest construction, (ii) is suitable for facilitating gas diffusion conducive to embryo development, (iii) can develop and maintain temperatures and a moisture content conducive to embryo development, and (iv) allows for emergence of hatchlings from eggshells, through sand substrate to the beach surface, and across the sand to the ocean.

(2) Nesting beach habitat with sufficient darkness such that nesting turtles are not deterred from emerging onto the beach and hatchlings and post-nesting females can orient to the sea.

(3) Within the range of the Central North Pacific DPS, basking habitat that includes access to natural and artificial coastlines with gradually sloping beaches (sandy, corally, or gravel substrate), emergency sandy lands, sand spits, low shelving reef rocks, as well as relatively unimpeded nearshore access from the ocean to the beach.

(4) Natural coastal processes or artificially created or maintained habitat mimicking natural conditions. This includes artificial habitat types that mimic natural conditions described in PBFs 1 to 3 above for beach access, nest site selection, nest construction, egg deposition and incubation, and hatchling emergence and movement to the sea. Habitat modification and loss occurs with beach stabilization activities that prevent the natural transfer and erosion and accretion of sediments along ocean shorelines. Beach stabilization efforts that may impact green turtle nesting include beach nourishment, beach maintenance, sediment dredging and disposal, inlet channelization, and construction of jetties and other hard structures. However, when sand

placement activities result in beach habitat that mimics the natural beach habitat conditions impacts to green turtle nesting habitat are minimized.

C. Unit Descriptions

All proposed critical habitat units are listed and fully described in Enclosure 3, including size/acreages and ownership. All units/subunits are occupied by the species and contain one or more of the PBFs essential to the conservation of the species. Maps are provided in Enclosure 4. A full description of the threats affecting green turtles and associated Special Management Considerations or Protections necessary to reduce or ameliorate threats that are related to the PBFs, as listed in each unit description, is provided in Enclosure 1.

D. Exemptions Under Section 4(a)(3)

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DoD), or designated for its use, that are subject to an Integrated Natural Resource Management Plan (INRMP) prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation. DoD lands occur within 14 areas of the proposed critical habitat designation:

North Atlantic DPS:

(1) Two areas that overlap Tyndall Air Force Base in Bay County, Florida, which is managed according to their INRMP (Tyndall AFB 2020, entire). These areas total approximately 1,244 ac (503 ha).

(2) One area that overlaps Eglin Air Force Base in Okaloosa County, Florida, which is managed according to their INRMP (DoD 2017, entire). This area totals approximately 1,621 ac (656 ha).

South Atlantic DPS:

None

Central North Pacific DPS:

(3) One area that overlaps Pacific Missile Range Facility on the island of Kaua‘i, which is managed according to their INRMP (PMRF 2010, entire). This area totals approximately 298 ac (121 ha).

(4) One area that overlaps Bellows Air Force Station on the island of Oʻahu, which is managed according to their INRMP (BAFS 2018, entire). This area totals approximately 5 ac (2 ha).

(5) One area that overlaps Joint Base Pearl Harbor Hickam on the island of Oʻahu, which is managed according to their INRMP (Navy 2011, entire). This area totals approximately 10 ac (4 ha).

(6) Six areas that overlap Marine Corps Base Hawaiʻi on the island of Oʻahu, which is managed according to their INRMP (MCBH 2017, entire). This area totals approximately 44 ac (18 ha).

(7) One area that overlaps Marine Corps Training Area Bellows on the island of Oʻahu, which is managed according to their INRMP (MCBH 2017, entire). This area totals approximately 18 ac (7 ha).

(8) One area that overlaps Marine Corps Puʻuloa Range Training Facility on the island of Oʻahu, which is managed according to their INRMP (MCBH 2017, entire). This area totals approximately 3.5 ac (1 ha).

(9) One area that overlaps Dillingham Military Reservation on the island of Oʻahu, which is managed according to an addendum to their existing INRMP that is under development and to be completed fall 2022. This area totals approximately 14.5 ac (6 ha).

(10) One area that overlaps Mākua Military Reservation on the island of Oʻahu, which is managed according to an addendum to their existing INRMP that is under development and to be completed fall 2022. This area totals approximately 5 ac (2 ha).

Central South Pacific DPS:

None

Central West Pacific DPS:

(11) Six areas that overlap Joint Region Marianas Andersen Air Force Base in Yigo, Guam, which is managed according to their INRMP (JRM 2019, entire). This area totals approximately 32 ac (13 ha).

(12) Eight areas that overlap Joint Region Marianas Naval Base Guam Main Base in Asan, Guam, which is managed according to their INRMP (JRM 2019, entire). This area totals approximately 7 ac (3 ha).

(13) One area that overlaps Joint Region Marianas Naval Base Guam Telecommunication Site in Santa Rita, Guam, which is managed according to their INRMP (JRM 2019, entire). This area totals approximately 1 ac (0.5 ha).

(14) Twenty-five (25) areas that overlap Joint Region Marianas Tinian in the Northern Mariana Islands, which is managed according to their INRMP (JRM 2019, entire). This area totals approximately 9.5 ac (4 ha).

Section 4(a)(3)(B) of the Act applies to these areas, as a result of USFWS-approved INRMPs being implemented on these 14 installations. Therefore, a total of approximately 2,865 ac (1,159 ha) will be exempt from the North Atlantic DPS proposed designation, approximately 398 ac (161 ha) will be exempt from the Central North Pacific DPS proposed designation, and approximately 49.5 ac (20.5 ha) will be exempt from the Central West Pacific DPS proposed designation.

E. Considered Exclusions Under Section 4(b)(2)

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. At this time, we are considering excluding the following areas from this critical habitat designation:

North Atlantic DPS:

(1) Approximately 93 ac (37 ha) of Walton County lands in Walton County, Florida may be considered for exclusion under section 4(b)(2) of the Act. This considered exclusion is based on conservation measures in Walton County's Habitat Conservation Plan (HCP) that provide a benefit to green turtle habitat, (Environmental Associates, Inc. 2011, entire).

(2) Approximately 139 ac (56 ha) of Indian River County lands in Indian River County, Florida may be considered for exclusion under section 4(b)(2) of the Act. This considered exclusion is based on conservation measures in Indian River County's HCP that provide a benefit to green turtle habitat (Ecological Associates, Inc. 2017, entire).

South Atlantic DPS:

None

Central North Pacific DPS:

None

Central South Pacific DPS:

None

Central West Pacific DPS:

None

III. BASELINE ANALYSIS

In the following section, we describe conservation efforts and protections that are part of the baseline; that is, those protections or efforts that currently exist and provide some level of conservation for the green turtle. These efforts and protections will occur with or without critical habitat designation.

A. Identify Other Co-Occurring Listed Species or Designated Critical Habitat That Overlap with the Green Turtle Proposed Critical Habitat

The ranges of 73 other federally-listed species (23 in the North Atlantic DPS, 5 in the South Atlantic DPS, 41 in the Central North Pacific DPS, 1 for the Central South Pacific DPS, and 3 in the Central West Pacific DPS) overlap (in part or whole) the proposed critical habitat for the 5 green turtle DPSs (Table 1; noting that some of these species occur in more than one DPS). Critical habitat designations are in place for many of these species, 46 of which overlap with green turtle proposed critical habitat units (Tables 2, 3a, and 3b).

Conservation efforts aimed at benefitting these other listed species, or protecting and managing these other designated critical habitats, are broadly compatible with green turtle conservation. For example, such efforts may include avoiding new coastal development and shoreline stabilization, managing recreation and other human activities, managing predator populations, and restoring coastal habitats or facilitating their landward migration in response to sea level rise.

Table 1: Co-occurring listed species.

Listed Species, Federal Listing Status	States, Territories, or Commonwealth in Which the Species Overlaps With Green Turtle Proposed Units (# of Units That Overlap)[1]	Number of Proposed Green Turtle Units That Overlap	Expected Incremental Conservation Recommendations after Green Turtle Critical Habitat is Designated? (Major Changes, Minor Changes, or None[2]
AMPHIBIANS – All DPSs			
none	none	N/A	N/A
BIRDS – North Atlantic DPS			
1. Florida scrub-jay (*Aphelocoma coerulescens*), Threatened	FL (13)	23	None
2. Piping plover (*Charadrius melodus*), Threatened	FL (22)		
3. Rufa red knot (*Calidris canutus rufa),* Threatened	FL (20)		
4. Roseate tern (*Sterna dougallii dougallii*), Threatened	FL (3)		
5. Yellow-shouldered blackbird (*Agelaius xanthomus*), Endangered	PR (1)		
BIRDS – South Atlantic DPS			
1. Roseate tern (*Sterna dougallii dougallii*), Threatened	STX, USVI (1)	1	None
BIRDS – Central West Pacific DPS			
1. Guam Micronesian kingfisher (*Halcyon cinnamomina cinnamomina*), Endangered	GU (2)	4	None
2. Mariana crow or aga (*Corvus kubaryi*), Endangered	GU (2), MP (2)		
BIRDS – Central North Pacific and Central South Pacific DPSs			
none	none	N/A	N/A
FISHES – All DPSs			
none	none	N/A	N/A
INVERTEBRATES – North Atlantic DPS			
1. Miami blue butterfly (*Cyclargus thomasi bethunebakeri*), Endangered	FL (3)	3	None
INVERTEBRATES – Central North Pacific DPS			
1. Blackburn's sphinx moth (*Manduca blackburni*), Endangered	HI (2)	11	None
2. Anthricinan yellow-faced bees or nalo meli maoli (*Hylaeus anthracinus*)	HI (1)		
3. Easy yellow-faced bees or nalo meli maoli (*Hylaeus assimulans*)	HI (7)		
4. Easy yellow-faced bees or nalo meli maoli (*Hylaeus facilis)*	HI (1)		
5.Hilarius yellow-faced bees or nalo meli maoli (*Hylaeus hilaris*)	HI (1)		

Listed Species, Federal Listing Status	States, Territories, or Commonwealth in Which the Species Overlaps With Green Turtle Proposed Units (# of Units That Overlap)[1]	Number of Proposed Green Turtle Units That Overlap	Expected Incremental Conservation Recommendations after Green Turtle Critical Habitat is Designated? (Major Changes, Minor Changes, or None[2]
6. Hawaiian yellow-faced bees or nalo meli maoli (*Hylaeus longiceps)*	HI (3)		
INVERTEBRATES – South Atlantic, Central South Pacific, and Central West Pacific DPSs			
none	none	N/A	N/A
MAMMALS – North Atlantic DPS			
1. Choctawhatchee beach mouse (*Peromyscus polionotus allophrys*), Endangered	FL (2)	12	None
2. Lower Keys marsh rabbit (*Sylvilagus palustris hefneri*), Endangered	FL (1)		
3. Southeastern beach mouse (*Peromyscus polionotus niveiventris*), Threatened	FL (8)		
4. St. Andrew beach mouse (*Peromyscus polionotus peninsularis*), Endangered	FL (1)		
MAMMALS – Central North Pacific DPS[3]			
1. Hawaiian hoary bat or ʻōpeʻapeʻ (*Lasiurs semotus*)	HI (24)	24	None
MAMMALS – Central West Pacific DPS			
1. Mariana fruit bat or fanihi (*Pteropus mariannus mariannus*), Threatened	GU (2)	2	None
MAMMALS – South Atlantic, Central North Pacific, and Central South Pacific DPSs			
none	none	N/A	N/A
PLANTS – North Atlantic DPS			
1. Aboriginal prickly apple (*Harrisia aboriginum*), Endangered	FL (5)	15	None
2. Beach jacquemontia (*Jacquemontia reclinata*), Endangered	FL (6)		
3. Cape Sable thoroughwort (*Chromolaena frustrata*), Endangered	FL (3)		
4. Florida perforate cladonia (*Cladonia perforata*), Endangered	FL (6)		
5. Four-petal pawpaw (*Asimina tetramera)*, Endangered	FL (6)		
6. Fragrant prickly apple (*Cereus eriophorus var. fragrans*), Endangered	FL (2)		
7. Garber's spurge (C*hamaesyce garberi*), Threatened	FL (3)		

Listed Species, Federal Listing Status	States, Territories, or Commonwealth in Which the Species Overlaps With Green Turtle Proposed Units (# of Units That Overlap)[1]	Number of Proposed Green Turtle Units That Overlap	Expected Incremental Conservation Recommendations after Green Turtle Critical Habitat is Designated? (Major Changes, Minor Changes, or None[2]
PLANTS – South Atlantic DPS			
1. No common name (*Agave eggersiana*), Endangered	STX, USVI (2)	2	None
PLANTS – Central North Pacific DPS			
1. Coastal flatsedge (*Cyperus pennatiformis*), Endangered	HI (1)	9	None
2. Loulu (P*ritchardia remota*), Endangered	HI (1)		
3. Hilo ischaemum (*Ischaemum byrone*), Endangered	HI (2)		
4. ʻOhai (*Sesbania tomentosa*), Endangered	HI (5)		
5. ʻAwiwi (*Schenkia sebaeoides*), Endangered	HI (3)		
6. No common name (*Vigna o-wahuensis*), Endangered	HI (3)		
7. ʻOlulu (*Brighamia insignis*), Endangered	HI (1)		
8. No common name (*Kadua stjohnii*), Endangered	HI (1)		
9. Puukaa (*Cyperus trachysanthos*), Endangered	HI (1)		
10. Maʻoliʻoli (*Schiedea apokremnos*), Endangered	HI (1)		
11. Lauʻehu (*Panicum niihauense),* Endangered	HI (1)		
12. Round-leaved chaff-flower (*Achyranthes splendens* var. *rotundata*), Endangered	HI (1)		
13. Koʻokoʻolau (*Bidens amplectens*), Endangered	HI (1)		
14. ʻAkoko (*Euphorbia celastroides* var. *kaenana*), Endangered	HI (1)		
15. Kokomalei (*Chamaesyce kuwaleana*), Endangered	HI (1)		
16. Kohe malamamalama o kanaloa (*Kanaloa kahoolawensis*), Endangered	HI (1)		
17. Kookoolau (*Bidens micrantha* ssp. *kalealaha*), Endangered	HI (1)		
18. No common name (*Bonamia menziesii*), Endangered	HI (1)		

Listed Species, Federal Listing Status	States, Territories, or Commonwealth in Which the Species Overlaps With Green Turtle Proposed Units (# of Units That Overlap)[1]	Number of Proposed Green Turtle Units That Overlap	Expected Incremental Conservation Recommendations after Green Turtle Critical Habitat is Designated? (Major Changes, Minor Changes, or None[2]
19. Āwikiwiki (*Canavalia pubescens*), Endangered	HI (1)		
20. Kamanomano (*Cenchrus agrimonioides*), Endangered	HI (1)		
21. Kauila (*Colubrina oppositifolia*), Endangered	HI (1)		
22. Pauoa (*Ctenitis squamigera*), Endangered	HI (1)		
23. Mehamehame (*Flueggea neowawraea*), Endangered	HI (1)		
24. Ma‘o hau hele (*Hibiscus brackenridgei*), Endangered	HI (1)		
25. Nehe (*Melanthera kamolensis*), Endangered	HI (1)		
26. Alani (*Melicope mucronulata*), Endangered	HI (1)		
27. No common name (*Neraudia sericea*), Endangered	HI (1)		
28. Kulu‘i (*Nototrichiun humile*), Endangered	HI (1)		
29. ʻIliahi (*Santalium haleakalae* var. *lanaiense*), Endangered	HI (1)		
30. Popolo ku mai (*Solanium incompletum*), Endangered	HI (1)		
31. No common name (*Spermolepis hawaiiensis*), Endangered	HI (1)		
32. A‘e (*Zanthoxylum hawaiiensis*), Endangered	HI (1)		
PLANTS – Central South Pacific and Central West Pacific DPSs			
none	none	N/A	N/A
REPTILES – North Atlantic DPS			
1. Hawksbill sea turtle (*Eretmochelys imbricata*), Endangered	FL (23), PR (3), VPR (7)	33	None
2. Kemp's ridley sea turtle (*Lepidochelys kempii*), Endangered	FL (7)		
3. Leatherback sea turtle (*Dermochelys coriacea*), Endangered	FL (23), PR (3), VPR (7)		
4. Loggerhead sea turtle (*Caretta caretta*), Threatened	FL (23)		
5. Mona ground iguana (*Cyclura stejnegeri*), Threatened	PR (1)		

Listed Species, Federal Listing Status	States, Territories, or Commonwealth in Which the Species Overlaps With Green Turtle Proposed Units (# of Units That Overlap)[1]	Number of Proposed Green Turtle Units That Overlap	Expected Incremental Conservation Recommendations after Green Turtle Critical Habitat is Designated? (Major Changes, Minor Changes, or None[2]
6. Mona boa (*Chilabothrus monensis*), Threatened	PR (1)		
REPTILES – South Atlantic DPS			
1. Hawksbill sea turtle (*Eretmochelys imbricata*), Endangered	STX, USVI (8)	8	None
2. Leatherback sea turtle (*Dermochelys coriacea*), Endangered	STX, USVI (8)		
3. St. Croix ground lizard (*Ameiva polops*), Endangered	STX, USVI (1)		
REPTILES – Central North Pacific DPSs			
1. Hawksbill sea turtle (*Eretmochelys imbricata*), Endangered	HI (4)	4	N/A
2. Olive Ridley sea turtle *(Lepidochelys olivacea),* Threatened	HI (1)		N/A
REPTILES – Central South Pacific DPSs			
1. Hawksbill sea turtle (*Eretmochelys imbricata*), Endangered	AS (3)	3	N/A

1 – Location abbreviations include: FL – Florida; GU – Guam; HI – Hawai‘i; MP –Northern Mariana Islands; PR – Puerto Rico; STX, USVI – St. Croix, U.S. Virgin Islands; VPR – Vieques Island, Puerto Rico.

2 - It is possible there might be some incremental conservation recommendations. However, because we already consult on green turtle nesting habitat as a result of listing it as a threatened or endangered species, and provide conservation recommendations throughout the species range within the five DPSs, most proposed actions are likely to result in no changes to incremental conservation recommendations.

3 - The Hawaiian monk seal was not included in this Incremental Effects Memorandum because the species falls under the regulatory jurisdiction of NOAA.

Table 2: Co-occurring Critical Habitat – North Atlantic and South Atlantic DPSs.

Species With Designated Critical Habitat That Overlap Green Turtle Proposed Critical Habitat	North Atlantic DPS			South Atlantic DPS	
	Florida[1] ac (ha); # of units	Puerto Rico ac (ha); # of units	TOTAL ac (ha); # of units	St. Croix, U.S. Virgin Islands ac (ha); # of units	TOTAL ac (ha); # of units
Piping plover	385 (155); 4 units	N/A	**385 (155); 4 units**	N/A	**N/A**
Yellow-shouldered blackbird	N/A	66 (27); 1 unit	**66 (27); 1 unit**	N/A	**N/A**
St. Andrew's beach mouse	426 (172); 1 unit	N/A	**426 (172); 1 unit**	N/A	**N/A**
Choctawhatchee beach mouse	134 (54); 2 units	N/A	**134 (54); 2 units**	N/A	**N/A**
Aboriginal prickly apple	114 (45); 4 units	N/A	**114 (45); 4 units**	N/A	**N/A**
Cape Sable thoroughwort	4 (2); 1 unit	N/A	**4 (2); 1 unit**	N/A	**N/A**
Agave eggersiana	N/A	N/A	**N/A**	4 (2); 2 units	**4 (2); 2 units**
Loggerhead sea turtle[3]	4,649 (1,881); 18 units	N/A	**4,649 (1,881); 18 units**	N/A	**N/A**
Hawksbill sea turtle	N/A	66 (27); 1 unit	**66 (27); 1 unit**	N/A	**N/A**
Leatherback sea turtle	N/A	N/A	**N/A**	27 (11); 1 unit	**27 (11); 1 unit**
Mona boa	N/A	66 (27); 1 unit	**66 (27); 1 unit**	N/A	**N/A**
Mona ground iguana	N/A	66 (27); 1 unit	**66 (27); 1 unit**	N/A	**N/A**
	Total overlap (combined[2]) for each DPS:		**4,849 ac (1,962 ha) 81 percent**		**31 ac (13 ha) 27 percent**

**Totals may not sum due to rounding.*

1 – Critical habitat is proposed for the federally threatened rufa red knot and the Florida Keys mole skink. If finalized as proposed, an additional 1,009 ac (408 ha) of rufa red knot critical habitat overlap could occur with five green turtle proposed critical habitat units, and an additional 38 ac (16 ha) of Florida Keys mole skink critical habitat overlap could occur with two green turtle proposed critical habitat units.

2 – The total overlap (combined) value is not necessarily a sum of the overlap acres/hectares (columns) because critical habitat designations for some of these species have overlapping footprints.

3 - Critical habitat for the loggerhead turtle is line segments as opposed to polygons/acreage. However, we calculated acreage based on the start/finish of each line segment and the same area within that line that overlapped the green turtle proposed critical habitat area, per the loggerhead unit descriptions.

Table 3a: Co-occurring Critical Habitat – Central North Pacific DPS

Species With Designated Critical Habitat That Overlap Green Turtle Proposed Critical Habitat	Central North Pacific DPS		
	Main Hawaiian Islands[1] ac (ha); # of units	Northwestern Hawaiian Islands[2] ac (ha); # of units	TOTAL ac (ha); # of units
Achyranthes splendens var. *rotundata*	0.30 (0.12); 1 unit	N/A	**0.30 (0.12); 1 unit**
Bidens amplectens	0.30 (0.12); 1 unit	N/A	**0.30 (0.12); 1 unit**
Bidens micrantha ssp. kalealaha	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
*Bonamia menziesi*i	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Brighamia insignis	189.21 (76.57); 1 unit	N/A	**189.21 (76.57); 1 unit**
Canavalia pubescens	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Cenchrus agrimonioides	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Chamaesyce kuwaleana	0.88 (0.35); 1 unit	N/A	**0.88 (0.35); 1 unit**
Colubrina oppositifolia	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Ctenitis squamigera	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Cyperus pennatiformis	N/A	171.65 (69.27); 1 unit	**171.65 (69.27); 1 unit**
Cyperus trachysanthos	189.21 (76.57); 1 unit	N/A	**189.21 (76.57); 1 unit**
Euphorbia celastroides var. *kaenana*	0.30 (0.12); 1 unit	N/A	**0.30 (0.12); 1 unit**
Flueggea neowawraea	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Hibiscus brackenridgei	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Ischaemum byrone	4.36 (1.77); 2 units	N/A	**4.36 (1.77); 2 units**
Kadua stjohnii	189.21 (76.57); 1 unit	N/A	**189.21 (76.57); 1 unit**
Kanaloa kahoolawensis	2.7 (1.09); 1 unit	N/A	**2.7 (1.09); 1 unit**
Melanthera kamolensis	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Melicope mucronulata	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Neraudia sericea	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Nototrichium humile	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Panicum niihauense	189.21 (76.57); 1 unit	N/A	**189.21 (76.57); 1 unit**
Pritchardia remota	N/A	510.85 (206.73); 1 unit	**510.85 (206.73); 1 unit**
Santalum haleakalae var. *lanaiense*	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Schenkia sebaeoides	190.39 (77.04); 3 units	N/A	**190.39 (77.04); 3 units**
Schiedea apokremnos	189.21 (76.57); 1 unit	N/A	**189.21 (76.57); 1 unit**
Sesbania tomentosa	193.45 (78.27); 5 units	N/A	**193.45 (78.27); 5 units**
Solanum incompletum	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Spermolepis hawaiiensis	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Vigna o-wahuensis	3.88 (1.56); 3 units	N/A	**3.88 (1.56); 3 units**
Zanthoxylum hawaiiensis	0.36 (0.14); 1 unit	N/A	**0.36 (0.14); 1 unit**
Blackburn's sphinx moth	6.09 (2.46); 2 units	N/A	**6.09 (2.46); 2 units**

Total overlap (combined[3]) for the Central North Pacific DPS: 375.19 ac (151.63 ha)
17 percent

**Totals may not sum due to rounding.*

1 – The eight main islands comprise the southeastern (windward) Hawaiian Islands, including (from east to west) Hawai‘i, Maui, O‘ahu, Kaua‘i, Moloka‘i, Lāna‘i, Ni‘ihau, and Kaho‘olawe.

2 – These are the Northwestern Hawaiian Islands that are administered by the State of Hawai‘i (with the exception of Midway Islands). They are comprised of numerous islands, atolls, and islets that make up the northwestern (leeward) portion of the Hawaiian Archipelago.

3 – The total overlap (combined) value is not a sum of the overlap acres/hectares (column) because critical habitat designations for most of these species have overlapping footprints.

Table 3b: Co-occurring Critical Habitat – Central South Pacific and Central West Pacific DPSs.

Species With Designated Critical Habitat That Overlaps Green Turtle Proposed Critical Habitat	Central South Pacific DPS			Central West Pacific DPS		
	Palmyra Atoll ac (ha); # of units	American Sāmoa ac (ha); # of units	TOTAL ac (ha); # of units	Guam ac (ha); # of units	CNMI[1] ac (ha); # of units	TOTAL ac (ha); # of units
Mariana Fruit Bat	N/A	N/A	**N/A**	21.15 (8.56); 2 units	N/A	**21.15 (8.56); 2 units**
Guam Micronesian Kingfisher	N/A	N/A	**N/A**	21.15 (8.56); 2 units	N/A	**21.15 (8.56); 2 units**
Mariana Crow	N/A	N/A	**N/A**	21.15 (8.56); 2 units	3.74 (1.51); 2 units	**24.89 (10.07); 4 units**
Total overlap (combined[2]) for each DPS:			**0 ac (0 ha) 0 percent**			**25 ac (10 ha) 8 percent**

**Totals may not sum due to rounding.*

1 – Location abbreviation: CNMI is the Commonwealth of the Northern Mariana Islands.

2 – The total overlap (combined) value is not a sum of the overlap acres/hectares (column) because there is overlapping footprints of the critical habitat designations.

B. Identify Conservation Plans And Regulatory Mechanisms That Provide Protection To The Species And Its Habitat Absent The Critical Habitat Designation.

Existing conservation efforts and regulatory mechanisms that provide some level of protection to the green turtle and its habitat are discussed below[3].

1. Private Conservation Plans/Efforts

The following are ongoing conservation efforts by private parties or non-profit organizations that provide some benefits to the green turtle and are considered part of the baseline because these activities will occur with or without critical habitat designation.

All DPSs - Sea Turtle Conservancy

It is the mission of Sea Turtle Conservancy (STC) to ensure survival of sea turtles within the Caribbean, Atlantic, and Pacific (although most is in Florida and the Caribbean) through research, education, training, advocacy, and protection of natural habitats upon which they depend. For over 60 years, STC's research programs have yielded much of what is known about sea turtles and threats they face, and the organization is applying this knowledge to carry out sea turtle protection and recovery programs.

North Atlantic DPS - Florida Ongoing Conservation Efforts

There are several conservation efforts that benefit all sea turtles and that take place within proposed green turtle units in Florida. In general, all units in Florida are monitored for sea turtle nesting activity and for threats affecting sea turtles (predation, lighting, beach and dune restoration and armoring effects) and physical or biological features of their habitat. Non-governmental organizations (NGOs), research institutions, local, county, state and federal organizations all operate within centralized permitting issued for monitoring and research as required by Florida's Fish and Wildlife Commission (FWC) and within USFWS and FWC's Endangered Species Act Section 6 agreement. Standardization of monitoring, research and threats reporting is ensured through training by FWC at annual Florida Permitholder meetings and with the provision of written guidelines in the Florida Fish and Wildlife Conservation Commission Marine Turtle Conservation Handbook (FWC 2016, entire). Many of these organizations and focus of their activities are posted at "Seaturtle.org's" website (Seaturtle.org 2022, entire).

The Sea Turtle Grants Program (STGP), administered by the STC and funded by the sale of Florida's "Helping Sea Turtles Survive" specialty license plate, has supported advances in sea turtle research, public education, and rehabilitation of sick and injured sea turtles. The program

[3] Citations for management plans/ongoing efforts are included in the unit descriptions.

disperses over $300,000 in grants yearly to coastal county governments, educational institutions, and nonprofit groups through a competitive grants program. Since its establishment in 1998, the STGP has been able to award more than $4.2 million in grants in support of over 300 sea turtle research, conservation, and education projects throughout Florida (FWC 2022, entire). Sea turtle habitat specific projects include removal derelict structures and debris from nesting beaches and grants focused on invasive vegetation and debris removal. Efforts to reduce lighting threats included retrofitting lights and planting dune vegetation to reduce lighting on the beach were funded. Additional projects looking at sand quality, impacts to nesting beaches, and importance of pocket beaches have also been supported (Evans and Godfrey 2022, pers. comm).

***North Atlantic DPS* - Blowing Rocks Preserve**

The Nature Conservancy manages the Blowing Rocks Preserve where they have a Sea Turtle Rescue Program. The program conducts sea turtle stranding and salvage under FWC permits. Nesting sea turtles and hatchlings both can become stranded in the rock cliffs at the preserve. The nesting surveys are conducted by the Town of Jupiter Island. The preserve is managed for invasive species, marine debris, imperiled wildlife, turtle strandings, visitor management, and other stewardship work conducted by staff, volunteers, and partners (Kittredge 2022, pers. comm.).

North Atlantic DPS - Puerto Rico Ongoing Conservation Efforts

There are several ongoing conservation efforts that benefit all sea turtles and that take place within the proposed green turtle units in Puerto Rico. In general, all units in Puerto Rico are monitored for sea turtle nesting activity mostly by non-governmental and non-profit groups in collaboration with and authorized by the Puerto Rico Department of Environment and Natural Resources (DNER; 2013, entire), and in Vieques Island in collaboration with the National Wildlife Refuge (NWR) staff there as well. The Mona Island Unit PR–01 also has a seasonal hunting program managed by the Puerto Rico DNER that allows licensed hunters to help control feral goats and pigs, which in turn help minimize the predation effects of pigs on sea turtle nests (Island Conservation 2013, p. 8). Other ongoing efforts in Puerto Rico by non-governmental and non-profit groups besides sea turtle nesting surveys may include seasonal beach clean-up activities, reforestation, light pollution mitigation, outreach activities on sea turtle conservation, stranding response, and control of other introduced feral predators such as mongoose and dogs.

South Atlantic DPS - U.S. Virgin Islands – St. Croix Ongoing Conservation Efforts

There are several conservation efforts that benefit all sea turtles and that take place within the proposed green turtle units in St. Croix. In general, there is limited sea turtle nesting monitoring by the territory government and the Virgin Islands Department of Planning and Natural Resources (DPNR) has partnered with authorized private parties, non-profit organization and

volunteers to monitor for sea turtle nesting activity, in particular with the Sea Turtle Assistance and Rescue Network (STAR) for stranding response (Platenberg and Valiulis 2018, p. 17). For example, a portion of the St. Croix unit (USVI–04) is managed by The Nature Conservancy (TNC), and a portion of the Chenay to Coakley unit (USVI–05) is managed by the St. Croix Environmental Association (SEA) as the South Gate Coastal Reserve (St. Croix East End Marine Park 2016, entire). In addition, the St. Croix sea turtle project (*https://seaturtlecensus.com/*) is sponsored by The Ocean Foundation in cooperation with the Sandy Point NWR (USVI–01). Other ongoing efforts in St. Croix besides habitat protection and sea turtle nesting surveys may include seasonal beach clean-up activities, reforestation, light pollution mitigation, outreach activities on sea turtle conservation, stranding response, and control of introduced feral predators such as mongoose, dogs, and cats.

Central North Pacific DPS - Hawai‘i Ongoing Conservation Efforts

There are several conservation efforts that benefit all sea turtles and that take place within the proposed green turtle units in the Central North Pacific DPS. In 2005, the National Oceanic and Atmospheric Administration’s Marine Turtle Research Program began a campaign titled, “Show Turtles Aloha.” As a result of the interest and support from this campaign, a nonprofit organization on O‘ahu was formed in 2007 called Mālama i nā honu (Protect the Turtles). Mālama i nā honu works with state and federal sea turtle biologists to train community volunteers to monitor beaches weekly during the sea turtle nesting season. Volunteers document all basking and nesting sea turtle activity and potential threats using a smart phone application specifically designed for Mālama i nā honu. Data is collected and shared in real time with state and federal natural resource managers. All potential nests are reported to and reviewed by Mālama i nā honu and USFWS’ Coastal Program staff. Nests at specific beaches are monitored daily as hatching nears to have volunteers and community members observe a hatching event. Nest excavation is conducted by permitted biologists at nests after day 70 to identify clutch size, hatching success and emergence success. Mālama i nā honu, USFWS Coastal Program, and community volunteers conduct targeted outreach and mark nests as needed to decrease threats (i.e., off-road vehicles, beach fires). The organization provides nest survey coverage for approximately 90 percent of O‘ahu beaches and select beaches on the island of Kauai, which are some of the most heavily used beaches for visitors in the entire DPS.

The Hawai‘i Wildlife Fund a non-profit organization on the island of Maui manages volunteers to survey and monitor sea turtle nesting and basking activities and threats to nesting and basking green turtles. Outreach is conducted at the HI–18. Another organization such as the TNC manages a portion of unit HI–16 and HI–31 (TNC 2011, entire) for the conservation of nesting and basking green turtles. Other ongoing efforts in Hawai‘i besides habitat protection and sea turtle nesting surveys may include seasonal beach clean-up activities, reforestation, light

pollution mitigation, outreach activities on sea turtle conservation, stranding response, and control of introduced feral predators such as feral ungulates, mongoose, dogs, and cats.

Central South Pacific DPS – American Sāmoa Ongoing Conservation Efforts

None

Central West Pacific DPS – Northern Mariana Islands Ongoing Conservation Efforts

None

Central West Pacific DPS – Guam Ongoing Conservation Efforts

There are several conservation efforts that benefit all sea turtles and that take place within the proposed green turtle units on the island of Guam. In general, all units are monitored for nesting activity and threats to nesting adults, eggs, hatchlings, and the habitat by Haggan Watch, a non-profit organization to get the community to assist with monitoring the beaches regularly. Other ongoing efforts in these units include beach-clean-up activities and outreach activities on sea turtle conservation (Mazzei 2017, entire).

2. Conventions and Federal Regulations/Acts

The following multi-country Convention, Federal laws, and Federal regulations provide some benefits to the green turtle and are considered part of the baseline because these benefits will continue with or without critical habitat designation.

Conventions

The Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC): The Convention attends to the need for implementation of harmonious measures between nations, multilateral coordination of conservation and protection actions, and oversight of implementation of a regional agenda that will enable recovery of these species. The IAC is an intergovernmental treaty which provides legal framework for countries in North, Central and South America to take actions in benefit of these species. The IAC started in May of 2001 and currently has sixteen Contracting Parties. The Convention promotes protection, conservation, and recovery of populations of sea turtles and those habitats on which they depend, based on the best available data and taking into consideration the environmental, socioeconomic, and cultural characteristics of the Parties (Article II, Text of the Convention). These actions should cover both nesting beaches and the Parties' territorial waters.

Wildlife Laws and Regulations

Fish and Wildlife Coordination Act (16 U.S.C. 661-667e; the Act of March 10, 1934; Ch. 55; 48 Stat. 401), as amended by the Act of June 24, 1936, Ch. 764, 49 Stat. 913; the Act of August 14, 1946, Ch. 965, 60 Stat. 1080; the Act of August 5, 1947, Ch. 489, 61 Stat. 770; the Act of May 19, 1948, Ch. 310, 62 Stat. 240; P.L. 325, October 6, 1949, 63 Stat. 708; P.L. 85-624, August 12, 1958, 72 Stat. 563; and P.L. 89-72, 79 Stat. 216, July 9, 1965. The amendments enacted in 1946 require consultation with the USFWS and state fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources." Amendments also allow for the use of surplus Federal property for wildlife conservation purposes. Because water bodies are an important resource for the green turtle, and the species inhabits Federal lands, the species can receive some consideration and ancillary benefits during project reviews, when consultations are undertaken, or on surplus Federal properties. More information is available at: *https://www.govinfo.gov/content/pkg/COMPS-3003/pdf/COMPS-3003.pdf*.

Recovery Plan for the U.S. Population of the Atlantic Green Turtle (Atlantic Recovery Plan). While not a regulatory document, the Atlantic Recovery Plan (USFWS and NOAA Fisheries 1991, entire) describes conservation strategies and those measures that can be implemented to recover the Atlantic population of the green turtle. Both the USFWS and NOAA Fisheries have Sea Turtle Coordinators responsible for conducting and coordinating recovery actions for the green turtle throughout its U.S. range. In addition, numerous stakeholders are involved in recovery of the green turtle, including the FWC, Florida Department of Environmental Protection (FDEP), NWRs, National Park Service (NPS), U.S. Department of Defense, U.S. Geological Survey (USGS), U.S. Virgin Islands DPNR, Puerto Rico DNER, counties and municipalities, academia, non-governmental organizations, and others. The Recovery Plan is available at: *https://repository.library.noaa.gov/view/noaa/15995*.

Recovery Plan for the U.S. Pacific Populations of the East Pacific Green Turtle (Pacific Recovery Plan).
Like the Atlantic Recovery Plan described above, the Pacific Recovery Plan (USFWS and NOAA Fisheries 1998, entire) covers a much larger geographic area from the western coastal United States extending to Guam. Furthermore, the amount of jurisdictional overlap between nations, commonwealths, territories, and compact-of-free-association-states and their various turtle populations required a broader management perspective than attempted previously. Finally, sea turtles have not been studied as comprehensively in the Pacific as in other U.S. areas, and thus there are many areas in the Pacific where basic biological and ecological information must be obtained for management purposes. The Pacific Recovery Plan is intended to be used across

multiple jurisdictions as a pragmatic guide to recovering the threatened and endangered sea turtle populations in the Pacific Ocean. The Pacific Recovery Plan is available at: *https://ecos.fws.gov/docs/recovery_plan/981201f.pdf*.

Coastal Management

Shoreline stabilization has significant impacts on green turtle habitats and can also impact these DPSs through disturbance and increasing the effects of threats including lighting (i.e., raising the elevation of the sand surface with beach renourishment increases lighting visibility to turtles and cuts or removes vegetation that would otherwise block lighting). Federally-funded shoreline stabilization is typically carried out by the U.S. Army Corps of Engineers (Corps) as authorized by a series of ***Water Resources Development Acts***, the most recent of which was passed in 2018 (Title I of P.L. 115-270). The 2018 Water Resources Development Acts continued Federal authorization for projects including flood damage reduction, navigation, ecosystem restoration[4], shoreline protection (e.g., stabilization), and sediment removal (e.g., dredging).

In addition to its role in constructing shoreline stabilization projects, the Corps also administers a permitting program for certain projects in or near the intertidal habitats that support green turtles. Many such projects require Corps permits under section 404 of the ***Clean Water Act*** (i.e., Federal Water Pollution Control Act) (33 U.S.C. 1251 *et seq*.), as amended, which establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities regulated under section 404 include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining. These projects involve staging areas that can occur in green turtle habitat, or dredge material could be placed in beach areas used by nesting green turtles (noting that other aspects of these types of Corps activities that occur in water areas adjacent to nesting sites are handled through consultations with NOAA Fisheries). Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from section 404 regulation (e.g., certain farming and forestry activities). Under the section 404 program, no discharge of dredged or fill material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment, or if the nation's waters would be significantly degraded. In addition to section 404 permits, some coastal projects require Corps permits under section 10 of the ***Rivers and Harbors Appropriation Act*** of 1899 (30 Stat. 1151, as amended; 33 U.S.C. 403 *et seq*.), which regulates the placement of structures in U.S. navigable waters. In addition to Corps permits, the U.S. Coast Guard (Coast Guard) administers

[4] It is unclear how ecosystem restoration projects may be impacted by the implementation of proposed critical habitat. However, we do not believe a critical habitat designation would have a substantive effect on these types of projects, but rather a procedural affect by including an adverse modification of critical habitat analysis in the consultation process along with a jeopardy analysis.

a permitting program under section 9 of the Rivers and Harbors Appropriation Act of 1899, which regulates the construction of bridges, causeways, and dams in navigable waters.

The ***Coastal Barrier Resources Act*** (P.L. 97-348) (96 Stat. 1653; 16 U.S.C. 3501 *et seq*.), as amended by the Coastal Barrier Improvement Act of 1990 (P.L. 101-591; 104 Stat. 2931) designated relatively undeveloped coastal barriers along the Atlantic and Gulf coasts as part of the John H. Chafee Coastal Barrier Resources System and made these areas ineligible for most new Federal expenditures and financial assistance, including Federal flood insurance that can promote development. The goal of these laws is to remove Federal incentives for the development of coastal barriers (e.g., barrier islands), because such development can lead to loss of natural resources, threats to human life and property, and imprudent expenditure of tax dollars. These restrictions on development likely benefit green turtles in some areas.

The ***Coastal Zone Management Act*** of 1972 (P.L. 92-583) (86 Stat. 1280; 16 U.S.C. 1451-1464) (CZMA) provides Federal funding to implement the States' federally approved Coastal Zone Management programs, which guide and regulate development and other activities within the designated coastal zone of each State (for effects on any land or water use or natural resource of the coastal zone). To be federally approved, a State program must identify areas needed to protect, maintain, or replenish coastal lands or resources including coastal flood plains, aquifers and their recharge areas, estuaries, sand dunes, reefs, beaches, offshore sand deposits, and mangrove stands; include a definition of the term "beach" and a planning process for the protection of, and access to, public beaches and other public coastal areas of environmental, recreational, historical, esthetic, ecological, or cultural value; provide for the management of those land and water uses having a direct and significant impact on coastal waters and those geographic areas that are likely to be affected by or vulnerable to sea level rise; and assure the appropriate protection of those significant resources and areas, such as wetlands, beaches, dunes, and barrier islands, that make that State's coastal zone a unique, vulnerable, or valuable area (15 CFR Part 923). All eligible States, Territories, and Commonwealths in the green turtle's U.S. range have approved Coastal Zone Management programs (NOAA 2020). In those States with approved programs, the CZMA requires Federal action agencies to ensure activities they fund or authorize are consistent, to the maximum extent practicable, with enforceable policies of that State's federally approved coastal management program; this provision of CZMA is known as Federal consistency (15 CFR Part 930).

Several Federal laws and policies relate to the control of invasive species. Invasive vegetation can affect green turtle's habitat, while nonnative marine species can threaten green turtle food supplies (the latter of which is addressed by NMFS) and facilitate the spread of harmful algal species that can affect nesting habitat conditions. Under ***Executive Order 13112 - Invasive Species***, Federal agencies may not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless,

pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species, and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

The ***Plant Protection Act of 2000*** (P.L. 106-224) regulates the movement of noxious weeds, which are defined as any plant or plant product that can directly or indirectly injure or cause damage to crops or other interests of agriculture, navigation, the natural resources of the United States, the public health, or the environment. The United States Department of Agriculture (USDA) publishes, by regulation, a list of noxious weeds that are prohibited or restricted from entering the United States or that are subject to restrictions on interstate movement within the United States. Of the invasive plant species discussed in the final listing rule, none are on the Federal list, but *Carex kobomugi* (Japanese sedge or Asiatic sand sedge) is listed as a noxious weed by the States of Massachusetts and Connecticut, and *Casuarina* spp. (i.e., she-oak) are considered noxious weeds by the State of Florida. By policy, the USDA considers a plant species invasive only when it occurs on the Federal or a State-specific noxious weed list or a similar State list.

Under the ***Lacey Act*** (18 U.S.C. 42; 50 CFR 16), species listed as injurious may not be imported into the United States or transported between the continental United States, the District of Columbia, Hawai‘i, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means without a permit issued by the USFWS. The USFWS implements the injurious wildlife provisions of the Lacey Act through regulations at 50 CFR part 16. Species are added to the list of injurious wildlife to prevent their introduction or establishment through human movement in the United States. Regulation of transport or use within a State is the responsibility of each State. Possession of a species within State boundaries is also the responsibility of each State and is not regulated by an injurious wildlife listing. Injurious wildlife is defined as vertebrates, crustaceans, mollusks, and their offspring that are injurious to the interests of human beings, agriculture, horticulture, forestry, or the wildlife resources of the United States (USFWS 2010, p. 1).

The ***Oil Pollution Act of 1990*** (P.L. 101-380) (104 Stat. 484; 33 U.S.C. 2701 *et seq*.) expanded the ability of Federal agencies to respond to oil spills. The Oil Pollution Act also created the national Oil Spill Liability Trust Fund, which is available to provide up to one billion dollars per spill incident. In addition, the Oil Pollution Act provided new requirements for contingency planning by both government and industry in a three-tiered approach: the Federal government is required to direct all public and private response efforts for certain types of spill events; Area Committees (composed of Federal, State, and local officials) must develop detailed, location-specific Area Contingency Plans; and owners or operators of vessels and certain facilities that pose serious threats to the environment must prepare their own Facility Response Plans. The

Environmental Protection Agency (EPA) has published regulations for aboveground storage facilities, and the Coast Guard has done so for oil tankers. The Oil Pollution Act also increased penalties for regulatory noncompliance, broadened the response and enforcement authorities of the Federal government, and preserved State authority to establish laws governing oil spill prevention and response (EPA 2011). All oil and gas operations on the Outer Continental Shelf (e.g., exploration and extraction) are governed by laws and regulations to ensure safe operations and preservation of the environment. The Bureau of Safety and Environmental Enforcement (BSEE) within the Department of the Interior (DOI) promotes safety, protects the environment, and conserves resources offshore through vigorous regulatory oversight and enforcement (BSEE 2011, entire).

The construction and operation of terrestrial wind turbines are potentially subject to various Federal regulations. In the Pacific, terrestrial wind energy facilities are located within or adjacent to coastal areas. Lighting activities at these facilities can serve to disorient hatchlings as they make their way to the ocean. The USFWS has produced voluntary ***Land-Based Wind Energy Guidelines*** (USFWS 2012) to provide a structured, scientific process for addressing wildlife conservation concerns at all stages of land-based wind energy development.

All Federal agencies are required to adhere to the ***National Environmental Policy Act of 1969***, as amended (NEPA), for projects they fund, authorize, or carry out. Prior to implementation of such projects with a Federal nexus, NEPA requires the agency to analyze the project for potential impacts to the human environment, including natural resources. The Council on Environmental Quality's regulations for implementing NEPA state that agencies shall include a discussion on the environmental impacts of the various project alternatives (including the proposed action), any adverse environmental effects that cannot be avoided, and any irreversible or irretrievable commitments of resources involved. The public notice provisions of NEPA provide an opportunity for the USFWS and other interested parties to review proposed actions and provide recommendations to the implementing agency. NEPA does not impose substantive environmental obligations on Federal agencies—it merely prohibits an uninformed agency action. However, if an Environmental Impact Statement is prepared for an agency action, the agency must take a "hard look" at the consequences of this action and must consider all potentially significant environmental impacts. Federal agencies may include mitigation measures in the final Environmental Impact Statement as a result of the NEPA process that may help to conserve the green turtle and its habitat. Although NEPA requires full evaluation and disclosure of information regarding the effects of contemplated Federal actions on sensitive species and their habitats, it does not by itself regulate activities that might affect the green turtle; that is, effects to the species and its habitat would receive the same scrutiny as other plant and wildlife resources during the NEPA process and associated analyses of a project's potential impacts to the human environment.

3. Federal Land Management

The following Federal agencies own and manage lands within some of the areas proposed as critical habitat. Their ongoing land management activities are considered part of the baseline because they will provide some benefits to the green turtle with or without critical habitat designation. For those future proposed activities that may affect the green turtle or its critical habitat, section 7 consultation will occur.

Sikes Act Improvement Act

The DoD, with the assistance of the USFWS and the states, is responsible under the Sikes Act (16 U.S.C. 670a-670f, as amended) for carrying out programs and implementing management strategies to conserve and protect biological resources on its lands. The Sikes Act, as amended in 1997, requires the DoD to develop and implement INRMPs for military installations across the United States. These INRMPs are planning documents that allow DoD installations to implement landscape-level management of their natural resources while coordinating with various stakeholders. They are extremely important management tools that ensure military operations and natural resources conservation are integrated and consistent with stewardship and legal requirements. The INRMPs are reviewed and modified as needed every year by military installations and are reviewed at least every 5 years with the USFWS and states. The green turtle is a covered species under multiple INRMPs (noting that protections for other species under INRMPs may also provide benefits to green turtles). See Section II.D., above, for the complete list of installations and INRMPs that apply to green turtles.

U.S. Fish and Wildlife Service—Refuge Improvement Act

In 1997, President Clinton signed the National Wildlife Refuge System Improvement Act of 1997. The Act amends the National Wildlife Refuge System Administration Act of 1966. It was passed to ensure that the Refuge System is managed as a national system of related lands, waters, and interests for the protection and conservation of our Nation's wildlife resources, including species such as the green turtle. The major components include: (1) A strong and singular wildlife conservation Mission for the Refuge System; (2) a requirement that the Secretary of the Interior maintain the biological integrity, diversity, and environmental health of the Refuge System; (3) a new process for determining compatible uses on refuges; (4) a recognition that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible, are legitimate and appropriate public uses of the Refuge System; (5) establishment that these compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System; and (6) a requirement for preparing a comprehensive conservation plan for each refuge.

Comprehensive conservation plans (CCPs) exist and are being implemented for the following refuges that overlap green turtle proposed critical habitat units:

North Atlantic DPS Refuges:

(1) Florida: Unit FL–03, Merritt Island NWR. This refuge was established in 1963 as an overlay of the National Aeronautics and Space Administration's (NASA) John F. Kennedy Space Center. Located in southern Volusia and Northern Brevard Counties, a portion of FL–03 extends the full length of Refuge shoreline along the Atlantic Ocean. The Refuge supports a high density of green turtle nesting and is important habitat for loggerhead turtles, rufa red knots, and other shorebird species. The Refuge CCP includes working with partners on the implementation of sea turtle nesting surveys, nest marking, and predator removal intended to minimize impacts to nesting and hatchling green turtles (USFWS 2008a, pp. 82, 93–94).

(2) Florida: Unit FL–04, Archie Carr NWR. This refuge is located along Florida's southeast coast between Melbourne Beach and Wabasso Beach in Brevard and Indian River Counties. The refuge was established in 1991 to conserve threatened and endangered wildlife, especially sea turtles. A portion of FL–04 extends the full length of Refuge shoreline along the Atlantic Ocean, which is divided into multiple parcels. The Refuge supports a high density of green turtle nesting and is important habitat for loggerhead turtles. The Refuge CCP includes working with partners on the implementation of sea turtle nesting surveys, nest marking, minimizing human disturbance, and predator removal intended to minimize impacts to nesting and hatchling green turtles (USFWS 2008b, pp. 74–76).

(3) Florida: Unit FL–06, Hobe Sound NWR. This refuge was established in 1969 and is located in southeastern Martin County near the town of Hobe Sound. A portion of FL–06 extends the full length of Refuge shoreline along the Atlantic Ocean, which is divided into multiple parcels. The Refuge supports a high density of green turtle nesting and is important habitat for loggerhead turtles. The Refuge CCP includes working with partners on the implementation of sea turtle nesting surveys, nest marking, education, nonnative species removal, and minimizing human disturbance intended to minimize impacts to nesting and hatchling green turtles (USFWS 2006, pp. 81–86).

(4) Florida: Unit FL–11, Great White Heron NWR. This refuge encompasses a stretch of land and water in the lower Keys of Monroe County. The Refuge was established in 1938 and is managed as part of the Florida Keys NWR complex. FL–11 includes sandy beaches and vegetated dunes on the islands that compose Sawyer Key. These areas support a high density of green turtle nesting within the Florida Keys. The Refuge CCP includes implementation of nesting surveys, nest marking, debris removal, and predator removal intended to minimize impacts to nesting and hatchling green turtles (USFWS 2009, pp. 67–68).

(5) Florida: Unit FL–12, Key West NWR. This refuge was established in 1908 and is located 18.2 mi (29.3 km) west of Key West, Florida in Monroe County. It is managed as part of the Florida Keys NWR complex. The Refuge consists of the Marquesas Keys and 13 other keys distributed over a large area of open water. FL–12 includes sandy beaches and vegetated dunes on the islands that compose Marquesas and Boca Grande Keys. These areas support a high

density of green turtle nesting within the Florida Keys and are important habitat for loggerhead and hawksbill turtles. The Refuge CCP includes implementation of nesting surveys, nest marking, debris removal, and predator removal intended to minimize impacts to nesting and hatchling green turtles (USFWS 2009, pp. 67–68).

(6) Puerto Rico: Units VPR–01 to 05 and 07, Vieques NWR. This refuge was established in 2001 and encompasses 22,869 ac (9,255 ha) of land divided into the western parcel (8,200 ac (3,318 ha)) and the eastern parcel (14,669 ac (5,936 ha)) on the island of Vieques approximately 7 mi (11.3 km) east of Puerto Rico. Units 01 to 06 are on the eastern parcel while Unit 08 is on the western parcel of the Refuge. The Refuge supports the highest number of green turtle nesting in Puerto Rico and provides nesting habitat for leatherback and hawksbill turtles. The Refuge CCP includes working with partners on the implementation of sea turtle nesting surveys, nest marking, education, nonnative species removal, and minimizing human disturbance intended to minimize impacts to nesting and hatchling green turtles (USFWS 2007, pp. 69–79).

South Atlantic DPS Refuges:

St. Croix: Unit USVI–01, Sandy Point NWR. This refuge was established 1984 and encompasses 383 ac (155 ha) of land in the southwestern most point of St. Croix, USVI, south of the town of Fredericksted. This unit extends to almost the entire shoreline of the Refuge in the Caribbean Sea. The Refuge supports the highest number of green turtle nesting in the USVI and was established specifically to protect nesting habitat for the leatherback turtle and overlaps with critical habitat designated for this species. It also provides nesting habitat for the hawksbill turtle. The Refuge CCP includes working with partners on the implementation of sea turtle nesting surveys, nest marking, education, nonnative species removal, and minimizing human disturbance intended to minimize impacts to nesting and hatchlings of all sea turtles (USFWS 2010, pp. 91–111).

Central North Pacific DPS Refuges:

(1) Hawai‘i: Unit HI–01 and HI–03 to 06, Hawaiian Islands NWR. This refuge was established in 1909 as the Hawaiian Islands Reservation and later renamed as the Hawaiian Islands NWR. This refuge includes some of the most remote islands and atolls on the planet extending 1,200 mi (1,931 km) northwest of the island of O‘ahu in the Hawaiian archipelago. Due to its remote location, this refuge is not open to public visitation. In 2006, the Hawaiian Islands NWR, along with Midway Atoll NWR was designated as Papahānaumokuākea Marine National Monument. In 2010, the Monument was inscribed as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site and in 2016 the Monument was expanded to 582,578 mi^2 (1,508,870 km^2), nearly the size of the Gulf of Mexico. The Monument is protected and managed by four co-trustees: the Department of Commerce, the DOI, the State of Hawai‘i, and the Office of Hawaiian Affairs. Papahānaumokuākea Marine National Monument (PMNM) is the only mixed UNESCO World Heritage Site in the U.S. Management goals were identified in an earlier Hawaiian Islands NWR Master Plan (DOI 1970,

entire) and later encompassed in the PMNM Plan (PMNM 2008, entire). Much of the USFWS's efforts in this refuge support the work of NMFS who monitors reproductive success for the green turtle population as well as the critically endangered Hawaiian monk seal.

(2) U.S. Minor Outlying Islands: Unit HI–02, Midway Atoll NWR. This refuge was established in 1988 and encompasses 590,991 ac (239,166 ha) of land and water in the surrounding area. The refuge is located within the Northwestern Hawaiian Islands and is part of PMNM. The refuge is not open to public visitation. USFWS staff, volunteers, and contractors live on Midway to support the recovery and integrity of wildlife habitat and species while balancing their own human impact on the land and seascape and protecting historical resources.

(3) Hawai'i: Unit HI–07, Kilauea Point NWR. This refuge was established in 1985 and encompasses 199 ac (80.5 ha) on the island of Kauai, with the majority of the refuge located atop a 180-ft (55-m) ocean bluff. This refuge is open to the public, complete with a visitor center and other educational activities. While this refuge is managed primarily for nesting seabirds, there are discrete sandy areas along the shoreline that green turtles use. The Refuge CCP (USFWS 2016) includes long-term protections and population and habitat enhancements for migratory seabirds and the threatened Hawaiian goose, as well as restoration of native coastal plant communities. The Refuge CCP (USFWS 2016, entire) includes long-term protections and habitat enhancements for migratory seabirds and the threatened Hawaiian goose, as well as restoration of native coastal plant communities, all of which indirectly benefit green turtle nesting and basking habitat.

(4) Hawai'i: Unit HI–11, James Campbell NWR. This refuge is located along the coastline on the island of O'ahu and encompasses approximately 1,100 ac (445 ha). The Refuge was established in 1976 for the purpose of providing habitat for endangered Hawaiian waterbirds. The refuge is typically open to the public on a limited basis during the nonbreeding season of Hawaiian waterbirds. The Refuge CCP (USFWS 2011, entire) includes management of the unique and sensitive coastal sand dunes and coastal strand in order to protect and enhance the area for native vegetation, seabirds, other migratory birds, endangered Hawaiian monk seals, and green turtles.

Central South Pacific DPS Refuges:

(1) U.S. Minor Outlying Islands: Unit AS–01, Palmyra Atoll NWR. Established in 2001, this refuge is located about halfway between Hawai'i and American Sāmoa and consists of a circular string of about 26 islets nestled among several lagoons and encircled by 15,000 ac (6,070 ha) of shallow turquoise reefs and deep blue submerged reefs. Management goals for the Refuge are outlined in a USGS document developed for the TNC and the USFWS titled, Terrestrial Forest Management Plan for Palmyra Atoll (USGS 2011, entire). This plan includes habitat protection activities that will indirectly benefit green turtle nesting habitat.

(2) American Sāmoa: Unit AS–06, Rose Atoll NWR. The refuge was designated in 1973 to protect the area's biodiversity and expanded in 2009 as a marine national monument with approximately 20 ac (8.1 ha) of land and 1,600 ac (647 ha) of lagoon marine habitat. The Refuge

CCP (USFWS 2014, entire) includes management actions to protect, restore, and maintain the unique habitats of lagoon, coralline algal reef, beach strand, and littoral forest for corals, fish, seabirds, shorebirds, sea turtles, native plants, and invertebrates.

Central West Pacific DPS Refuges:

Guam: Unit GU–01 to 02, Guam NWR. The refuge was established in 1993 located on the northern tip of Guam and is composed of three units (the Andersen Air Force Base Overlay Unit, the Navy Overlay Unit, and the Ritidian Unit), including 385 terrestrial ac (156 ha) and 832 ac (337 ha) of submerged offshore area. The Refuge CCP (USFWS 2010, entire) focuses only on the Ritidian Unit and includes management actions to reduce nonnative pest species and restore habitat for native species, including the green turtle. Management planning for the overlay units is being addressed in INRMPs. Planning for the INRMPs is being conducted by the Units' respective military branches. The Ritidian Unit is the only unit open to the public.

Organic Act of 1916, as amended (54 U.S.C. 100101)

The Organic Act of 1916, as amended (54 U.S.C. 100101), addresses lands owned and managed by the NPS. This Act was established to "…promote and regulate the use of the Federal areas known as national parks, monuments, and reservations" to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." To ensure these duties are carried out, parks develop management plans to support the preservation of park resources, such as federally endangered or threatened species. Management plans vary by park, some of which include general management plans, wild and scenic river plans, visitor use management plans, wilderness plans, commercial services plans, implementation plans, and development concepts plans. Proposed critical habitat for the green turtle overlaps the following NPS lands:

North Atlantic DPS National Parks/Seashores:

(1) Florida: Unit FL–03, Canaveral National Seashore. This National Seashore has a General Management Plan that includes beach management to protect nesting and hatchling green turtles from anthropogenic disturbances (NPS 2014, pp. 159–162).

(2) Florida: Unit FL–13, Dry Tortugas National Park. This National Park's protections of loggerhead and green turtles was included in its establishing legislation. Dry Tortugas National Park has a General Management Plan that includes special protection zones intended to manage the beach to protect nesting and hatchling green turtles from anthropogenic disturbances (NPS 2000, p. 38).

(3) Unit FL–23, Gulf Islands National Seashore. The Florida District includes 21 mi (34 km) of beaches suitable for sea turtle nesting. The national seashore has a General Management Plan including management efforts to emphasize inventory, monitoring, and trend analysis of nesting

sea turtles from mid-March through September (NPS 2014, p. 86). A sea turtle monitoring program occurs in the Florida District during May 1 through November 30 survey protocols for detecting, identifying, and protecting nests. For example, NPS staff support rerouting of the Florida National Scenic Trail through seasonally restricted areas along the route applied during critical nesting periods for turtles (NPS 2014, p. 124). NPS continues efforts to install/convert to low pressure sodium lights for all external lighting fixtures on Gulf Islands National Seashore facilities to minimize artificial light pollution and reduce sea turtle disorientation (NPS 2014, p. 163).

South Atlantic DPS National Parks/Seashores:

St. Croix: Unit USVI–08, Buck Island Reef National Monument. The Buck Island Reef National Monument includes a sea turtle research and monitoring program that conducts sea turtle nest surveys year-round and manage the island in part for the benefit of sea turtles, such as restricting access to nesting areas during nesting season (NPS 2012, pp. 4–64)

Central North Pacific DPS National Parks/Seashores:

(1) Hawai‘i: Unit HI–16, Kalaupapa National Historical Park. The historical park was established in 1980 to expand upon the earlier National Historic Landmark site of the Kalaupapa Leper Settlement. It is administered by the NPS with the goal to preserve the cultural and physical settings of the two leper colonies on the island of Molokai, which operated from 1866 to 1969 and had a total of 8,500 residents over the decades. In addition to the abundance of cultural resources, Kalaupapa National Historical Park is also home to an abundance of geological, terrestrial, aquatic, and marine resources. Green turtles are one of many federally protected species that the park manages, to include the turtle’s nesting and basking habitat (NPS 2021, p. 47).

(2) Hawai‘i: Unit HI–26, Kaloko-Honokohau National Historical Park. The historical park, established in 1978, encompasses 1,161 ac (470 ha) on the island of Hawai‘i for the preservation, protection, and interpretation of traditional native Hawaiian activities and culture. The park contains important wetland habitat and unique anchialine ponds (NPS 1994, entire).

(3) Hawai‘i: Unit HI–26, Puuhonua o Honaunau National Historical Park. The historical park, established in 1955, encompasses 420 ac (170 ha) on the island of Hawai‘i for the preservation of an important Hawaiian cultural site called a puuhonua or refuge including temple platforms, royal fishponds, and coastal village sites (NPS 2015, p. 40).

(4) Hawai‘i: Unit HI–30, Hawai‘i Volcanoes National Park. The park was established in 1976 on the island of Hawai‘i. Extending from sea level to 13,681 ft (4,170 m), the park encompasses the summits of two of the world’s most active volcanoes, Kilauea and Mauna Loa, and is a designated International Biosphere Reserve and UNESCO World Heritage Site. The sandy shoreline areas within the park are remote and only accessible by backcountry hiking (NPS 2016, entire).

Central South Pacific DPS National Parks/Seashores:
American Sāmoa: Unit AS–03 to 04, National Park of American Sāmoa. The park is distributed across three islands: Tutuila, Ofu, and Tau. The park preserves and protects coral reefs, tropical rainforests, fruit bats, and the Samoan culture. Popular activities include hiking and snorkeling. Of the park's 8,257 ac (3,341 ha), 2,500 ac (1,000 ha) is coral reefs and ocean (NPS 1997, entire).

Central West Pacific DPS National Parks/Seashores:
(1) Guam: Unit GU–07, Agat Unit National Historic Park. This area is part of the War in the Pacific National Historical Park, located in the U.S. Territory of Guam. The Agat Unit National Historic Park was the southern landing site of the United States forces in the liberation of Guam on July 21, 1944 (NPS 1983, entire).
(2) CNMI: Unit MP–04, American Memorial Park. American Memorial Park honors the American and Marianas people who gave their lives during the Marianas Campaign of World War II (NPS 2019, pp. 45–47).

Some land management plans for these National Park lands in the three Pacific DPSs contain specific measures to protect the green turtle. Park areas not developed specifically for recreation and camping are managed for natural processes including wildlife species composition and are expected to maintain habitat for the green turtle.

4. State, Territory, or Commonwealth Protections and Land Management

Congress created the ***State and Tribal Wildlife Grants (SWG)*** program in 2000, recognizing the need to fund programs for the conservation of wildlife diversity. Congress mandated each state and territory to develop a ***State Wildlife Action Plan (SWAP)*** that provided a comprehensive wildlife conservation strategy to continue receiving Federal funds through the SWG program. The SWAPs serve as the blueprints for conserving our nation's fish and wildlife and preventing endangered species. Each state, territory, and the District Columbia submitted their plan to the USFWS for approval by 2005, and the plans have subsequently been updated with the latest science and information to guide conservation of over 12,000 species in greatest conservation need. Each state and territory with proposed green turtle critical habitat have a SWAP[5]. Congress currently appropriates about $61 million annually to the 56 states, territories, and the District of Columbia to implement the plans.

[5] Guidance for SWAPs indicates they should be updated every 10 years. SWAPs for Hawai‘i, CNMI, American Sāmoa, and Puerto Rico were last updated in 2015; the SWAP for USVI was last updated in 2018; and SWAPs for Florida and Guam were last updated in 2019.

(1) North Atlantic DPS - Florida Department of Environmental Protection

The FDEP mission, in part, states to "protect, conserve and manage the state's natural resources." Within FDEP resides the Division of State Lands. The Division of State Lands is Florida's lead agency for environmental management and stewardship; therefore, it provides oversight on the management of the State's public lands. The Division of Recreation and Parks (DRP) is the land management arm within FDEP. DRP manages a park system made up of 175 state parks, trails and historic sites. Each of these state parks must have a Land Management Plan that set forth the conservation and management of natural resources, among other things, within the park. The management of imperiled species occurring within the parks is a mandated aspect of the plan. During the development of these plans, DRP staff consult with Federal, State, and local agency experts to assist in defining imperiled animal species management objectives and actions. Data collected by us, the Florida Fish and Wildlife Conservation Commission, and other agencies help to inform the management actions and objectives. As stated in their Land Management Plans "Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet the DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Monitoring efforts must be prioritized so that the data collected provides information that can be used to improve or confirm the effectiveness of management actions on conservation priorities." Consequentially, the State parks manage their lands to "maintain healthy populations of imperiled plant and animal species primarily by implementing effective management of natural systems."

FDEP also manages three national estuarine research reserves (NERRs) through their Office of Resilience and Coastal Protection, in partnership with the NOAA. NOAA's NERR system is a network of 30 coastal sites designated to protect and study estuarine systems. Established through the Coastal Zone Management Act, the reserves represent a partnership program between NOAA Fisheries and the coastal states. Each reserve includes a variety of preserves, management areas, and conservation lands under different ownership or management. NOAA Fisheries provides funding and national guidance, and each site is managed daily by a lead state agency (FDEP in Florida) or university with input from local partners. Each reserve is required to develop and maintain a management plan consistent with NOAA's NERR system and must include four comprehensive management programs: ecosystem science; resource management; education, training, and outreach; and public use.

The Florida FWC is responsible for maintaining the SWAP and implementing the SWG program in Florida. Florida's SWAP is a comprehensive, statewide plan for conserving the state's wildlife and vital natural areas (FWC 2019, entire). Florida's SWAP identifies species and habitats in need of conservation as well as threats and conservation actions to guide SWG funding. Green turtles, as well as many other beach nesting species, are identified as a

species of greatest conservation need and benefit from SWG funding to address threats and provide conservation to coastal uplands.

The Imperiled Species Management Plan was also created by FWC to address the conservation needs of multiple state-listed species through a comprehensive approach (FWC 2016, entire). The approach is two-fold: use integrated strategies to benefit multiple species and simultaneously address individual species' needs. This comprehensive approach is a strategic course to imperiled species conservation and management, and it increases the opportunity to use available resources to benefit a greater number of species and effectively improve conditions for Florida's wildlife statewide. The strategies presented are intended to minimize threats and reverse negative impacts, and to address the complexity of improving habitat conditions for multiple species. Though the green turtle is not included in the plan, several shorebirds and seabirds are included with integrated conservation strategies and actions that will also benefit the green turtle.

Florida units within State (FDEP) ownership/management include: FL–01; FL–02; FL–04; FL–06; FL–07; FL–15; FL–16; FL–17; FL–19; and FL–22.

a. Guana Tolomato Matanzas National Estuarine Research Reserve: Unit FL–01

The 64,487-acre (29,097-ha) Guana Tolomato Matanzas (GTM) NERR includes Guana River Marsh Aquatic Preserve, the former Guana River State Park, Guana River Wildlife Management Area, Stokes Landing Conservation Area, and Deep Creek State Forest in the northern component and Pellicer Creek Aquatic Preserve, Faver-Dykes State Park, Washington Oaks Garden State Park, Moses Creek Conservation Area, Pellicer Creek Conservation Area, Fort Matanzas National Monument, Princess Place Preserve, and the River to Sea Preserve at Marineland. GTM NERR contains approximately 13 mi (21 km) of beachfront property, including almost 5 mi (8 km) of virtually undeveloped Atlantic coastal beach dune habitat that is managed by FDEP. Beach mice, shorebirds and sea turtles all use this protected stretch of beach. The green turtle proposed critical habitat unit FL–01 occurs entirely within the northern component of the GTM NERR and is managed by the FDEP under the GTM NERR Management Plan. Staff at the GTM NERR monitor sea turtle activity, mark nests, and evaluate hatchling success and emergence. When needed, beach erosion is stabilized through revegetation of natural coastal plants. The management plan also includes objectives that benefit the green turtle, such as limiting beach access to designated dune crossovers and restoring damage from unauthorized access, reducing disturbance to sea turtle nesting habitats, limiting artificial light to non-detectable levels, and providing education to residents, tourists, and neighboring landowners (FDEP 2009, entire).

b. Washington Oaks Garden State Park: Unit FL–02

The 425.5-acre (172-ha) Washington Oaks Garden State Park is included within the GTM NERR, but operates under a separate management plan, specifically for the park. The northern portion of the green turtle proposed critical habitat unit FL–02 overlaps with the beach dune and marine unconsolidated substrate (sandy beaches) within the park. Park staff and volunteers monitor sea turtle activity daily on the 0.7 mile (mi) (1.1 kilometer (km)) of sandy beach and mark and inventory nests. The habitat management measures at the park include maintaining the dune habitat through prescribed fire, invasive plant treatment, and monitoring for excessive or unnatural erosion then implementing mitigation measures as needed. The sandy beach habitat is maintained through monitoring for excessive or unnatural erosion then implementing mitigation measures (such as beach renourishment) if needed, cleaning up trash and manmade debris but leaving natural wrack, ensuring that local beach renourishment projects do not negatively impact the beach within the park, and minimizing impacts of driving all-terrain vehicles (ATVs) during sea turtle nesting surveys by staying below the mean high tide mark (FDEP 2017, entire).

c. Gamble Rogers Memorial State Recreation Area at Flagler Beach: Unit FL–02

Gamble Rogers Memorial State Recreation Area at Flagler Beach is a small state park (134 ac (54 ha)) located near the southern end of the proposed green turtle critical habitat Unit FL–02. Approximately 6 ac (2.4 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–02. During nesting season, park staff monitor sea turtle activity daily along the 0.5 mi (0.8 km) of shoreline to record number of crawls, false crawls, species identification, and number of nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park follows the FWC Marine Turtle Lighting guidelines to avoid the possibility of disorientation events (FDEP 2018a, entire).

d. North Peninsula State Park: Unit FL–02

The 558-ac (226-ha) North Peninsula State Park is located at the southern end of the proposed green turtle critical habitat unit FL–02. Approximately 37 ac (15 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–02. During nesting season, park staff monitor sea turtle activity daily along the 2.8 mi (4.5 km) of shoreline to record number of crawls, false crawls, species identification, and number of nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park follows the FWC Marine Turtle Lighting guidelines to avoid the possibility of disorientation events (FDEP 2018b, entire).

e. Sebastian Inlet State Park: Unit FL–04

The 971-ac (393-ha) Sebastian Inlet State Park is located within the Archie Carr NWR but operates under its own management plan and is managed by FDEP. The Park is located near the southern end of the proposed green turtle critical habitat unit FL–04 and occurs on both the north and south sides of the Sebastian Inlet. Approximately 75 ac (30 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–04. The Park participates in nest surveys and monitoring along its 6 mi (9.7 km) of shoreline. Park management goals that benefit the green turtle include conserving, protecting, and managing natural communities, significant habitat, and ecological systems; maintaining or increasing populations of listed plant and animal species occurring on the park; restoring highly altered or severely impacted natural communities; and providing environmental education and enhancing public appreciation for elements of natural and cultural diversity. Beach renourishment projects managed by the Sebastian Inlet District take place periodically to mitigate erosion on the beach south of the inlet and have had some negative impacts to sea turtle, beach mice, and shorebird habitat in the past. One of the strategies to maintain or increase populations of listed plant and animal species occurring on the park is to work with the Sebastian Inlet District to encourage more appropriate timing, frequency, sand source, and amount for future renourishment projects that allow for successful sea turtle nesting and to protect sensitive beach mouse and shorebird habitat. Additionally, predator removal projects may be implemented if it is determined that excessive predator populations are having negative impacts on sea turtles and their nests (FDEP 2008, entire).

f. St. Lucie Inlet Preserve State Park: Unit FL–06

The 4,835-ac (1,957-ha) St. Lucie Inlet Preserve State Park is located at the northern end of the proposed green turtle critical habitat unit FL–06. The park's 43 ac (17 ha) of beach dune habitat overlaps with Unit FL–06. During nesting season, park staff monitor sea turtle activity daily along the 2.7 mi (4.3 km) of shoreline to record number of crawls, false crawls, species identification, and number of nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park follows the FWC Marine Turtle Lighting guidelines to avoid the possibility of disorientation events. The beach dune habitat, especially along the northern beach, is impacted by erosion from storms and the disruption of natural sediment transport due to the inlet jetties. To avoid negative impacts to the nearshore worm reef, the park has declined sand nourishment projects and instead conducts native dune plantings, exotic vegetation removal, and establishes designated access trails as needed (FDEP 2014a, entire).

g. John D. MacArthur Beach State Park: Unit FL–07

The 436-ac (176-ha) John D. MacArthur Beach State Park is located near the southern end of the proposed green turtle critical habitat unit FL–07. The park's 18.6 ac (7.5 ha) of beach dune habitat overlaps with Unit FL–07. During nesting season, park staff monitor sea turtle activity daily along the 1.8 mi (2.9 km) of shoreline to record number of crawls, false crawls, species identification, and number of nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park conducts educational programs on the importance of marine turtles, follows the FWC Marine Turtle Lighting guidelines, and implements predator control and monitoring to remove predators of marine turtle nests from the beach. The beach dune habitat, especially along the northern beach due to a lack of any foredune on that stretch, is impacted periodically by erosion from storms. However, since there are no nearby jetties or other coastal armaments that disrupt natural sediment transport, the park has historically not had to pursue beach nourishment projects. Instead, the park relies on the natural process of sand accretion and conducts native dune plantings, exotic vegetation removal, and establishes designated access trails as needed (FDEP 2020, entire).

h. Gasparilla Island State Park: Unit FL–15

Gasparilla Island State Park is a small state park (127 ac (51 ha)) located at the southern end of the proposed green turtle critical habitat unit FL–15. Most of the park's 15 ac (6 ha) of beach dune habitat overlaps with Unit FL–15. During nesting season, park staff and associates of the Boca Grande Sea Turtle Conservancy monitor sea turtle activity daily along the 1 mi (1.6 km) of shoreline to mark and inventory nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park follows the FWC Marine Turtle Lighting guidelines to avoid the possibility of disorientation events. Due to erosion issues, the park constructed a seawall to protect cultural resources and has also received beach renourishment periodically (FDEP 2014b).

i. Don Pedro Island State Park: Unit FL–16

The 245-ac (99-ha) Don Pedro Island State Park is located near the middle of the proposed green turtle critical habitat unit FL–16. Approximately 22 ac (9 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–16. During nesting season, park staff and FWC volunteers monitor sea turtle activity along the 1.3 mi (2.1 km) of shoreline to inventory and mark nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park conducts educational

programs on sea turtles, follows the FWC Marine Turtle Lighting guidelines, and implements predator control and monitoring to remove predators of marine turtle nests from the island. The park's beach experiences some erosion but has not need beach renourishment to date. Approximately 2.7 mi (4.3 km) of beach to the north of the park has received periodic renourishment and sand from those projects has migrated south to the park's beach (FDEP 2013a, entire).

j. Stump Pass Beach State Park: Unit FL–17

The 211-ac (85-ha) re Stump Pass Beach State Park is located at the southern end of the proposed green turtle critical habitat unit FL–17. Approximately 17.5 ac (7 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–17. During nesting season, volunteers monitor sea turtle activity along the 1.2 mi (1.9 km) of shoreline to inventory and mark nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park conducts educational programs, follows the FWC Marine Turtle Lighting guidelines, and implements predator control and monitoring to remove predators of marine turtle nests from the park. The park's beach experiences some erosion due to storms and groins located north of the park that disrupt the natural southward flow of sand. Periodic beach renourishment is conducted as well as planting native dune vegetation, establishing designated dune crossovers, and potentially installing coastal structures to maintain the beach within the park (FDEP 2013b, entire).

k. Apalachicola National Estuarine Research Reserve: Unit FL–19

The 234,715-ac (94,986-ha) Apalachicola NERR includes Apalachicola Bay Aquatic Preserve, Cape St. George Island State Reserve, Dr. Julian G. Bruce George Island State Park, St. Vincent NWR, Apalachicola River Wildlife and Environmental Area, Box-R Wildlife Management Area, and Apalachicola River Water Management Area. The Apalachicola NERR contains approximately 27 mi (43 km) of beachfront property, of which 9 mi (14 km) on Little St. George Island is managed by FDEP's Office of Resilience and Coastal Protection as part of the NERR and overlaps with the green turtle proposed critical habitat unit FL–19. Staff at the Apalachicola NERR monitor sea turtle activity, mark nests, install predator exclusion screens, and evaluate hatchling success and emergence. Since Little St. George Island is uninhabited and can only be accessed by boat, anthropogenic influences are minimal, and no habitat management is required. If needed, to reduce shoreline erosion, the management plan calls for using habitat-friendly shoreline stabilization techniques. The management plan also includes objectives that benefit the green turtle outside the Apalachicola NERR boundary, such as conducting nest surveys on St. George Island and providing education to residents and tourists about sea turtles and lighting issues (FDEP 2014c, entire).

l. T.H. Stone Memorial St. Joseph Peninsula State Park: Unit FL–20

The 2,716-ac (1,099-ha) T.H. Stone Memorial St. Joseph Peninsula State Park is located at the northern end of the proposed green turtle critical habitat unit FL–20. Approximately 450 ac (182 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–20. During nesting season, park staff monitor sea turtle activity daily along the 9 mi (14 km) of shoreline to inventory and mark nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park conducts educational programs, eliminates artificial lighting seen from beaches and dunes, and implements predator control and monitoring to remove predators of marine turtle nests from the park. The park's beach experiences some erosion at the southern end and accretion at the northern end. Periodic dune restoration is conducted by planting native dune vegetation (FDEP 2014d, entire).

m. Topsail Hill Preserve State Park: Unit FL–22

The 1,638-ac (663-ha) Topsail Hill Preserve State Park encompasses the entire proposed green turtle critical habitat unit FL–22. Approximately 165 ac (67 ha) of the park's beach dune and marine unconsolidated substrate (sandy beaches) overlaps with Unit FL–22. During nesting season, park staff monitor sea turtle activity daily along the 3.25 mi (5.2 km) of shoreline to inventory and mark nests. Park management goals that benefit the green turtle include restoring and maintaining natural habitats; maintaining, improving, or restoring imperiled species populations and habitats in the park; and removing exotic and invasive plants and animals from the park. Additionally, the park conducts educational programs, follows the FWC Marine Turtle Lighting guidelines, and implements predator control and monitoring to remove predators of marine turtle nests from the park. The management plan advises that beach nourishment projects should be avoided, and dune restoration should involve native plantings to restore stabilization if necessary (FDEP 2019, entire).

(2) North Atlantic DPS – Puerto Rico Department of Environmental and Natural Resources

The Puerto Rico DNER oversees all sea turtle monitoring for units PR–01, 02, 03 and VPR–06 in cooperation with authorized sea turtle non-governmental and non-profit groups. Unit PR–01 is managed as the Mona Island Nature Reserve, and the Puerto Rico DNER has been monitoring sea turtle nesting activity there since the early 1990s (Diez and van Dam 2022, entire). The Puerto Rico DNER also manages a seasonal hunting program and maintains a pig exclusion fence that covers some of the nesting areas on Unit PR–01 Mona Island that ultimately helps minimize the predation effects of the pigs on sea turtle nests (Castro-Prieto 2021, p. 3). A portion of the Maunabo unit (PR–03) is also managed by the Puerto Rico

DNER as the Punta Tuna Nature Reserve, where sea turtle nesting activity has been monitored since the early 2000, as well as other efforts such as habitat reforestation, control light pollution and removal of invasive species (Crespo and Diez 2022, entire). Additionally, Unit VPR–06 on Vieques Island is managed by the Puerto Rico DNER as the Bioluminescent Bays Nature Reserve. All of these Units (PR–01, 02, 03 and VPR–06) are managed under the Puerto Rico State Wildlife Action Plan (DNER 2015, entire).

(3) South Atlantic DPS – Virgin Islands Department of Planning and Natural Resources

There are several conservation efforts that benefit all sea turtles and that take place within the proposed green turtle units in St. Croix. In general, there is limited sea turtle nesting monitoring within the territory units in St. Croix (Units USVI–02 to 07). The Virgin Islands DPNR has partnered with authorized volunteers and other groups to monitor for sea turtle nesting activity, in particular with the STAR for stranding response (Platenberg and Valiulis 2018, p. 17). Most units are managed under the Virgin Islands Division of Coastal Zone Management, DPNR (Platenberg and Valiulis 2018, entire), while others are managed by private entities (i.e., TNC and SEA) for conservation. Units USVI–02, 03, 06 and 07 are managed under the Virgin Islands Wildlife Action Plan (Platenberg and Valiulis 2018, entire), while units USVI–04 and 05 are within the St. Croix East End Marine Park designation that limits certain activities (e.g., fishing, recreation) that in part benefit sea turtles (St. Croix EEMP 2016, entire). Other ongoing efforts in St. Croix besides habitat protection and sea turtle nesting surveys may include seasonal beach clean-up activities, reforestation, light pollution mitigation, outreach activities on sea turtle conservation, stranding response, and control of introduced feral predators such as mongoose, dogs and cats.

(4) Central North Pacific DPS – Hawai‘i Department of Land and Natural Resources

Green turtle conservation on State lands are managed by the Hawai‘i Department of Land and Natural Resources (HDLNR) under the Hawaii State Action Plan (HDLNR 2015, entire). In addition green turtle conservation also occurs in under management plans from the HDLNR’s State Parks Division (units HI–08, 11, 12, 13, and 26) (HDSP 2022a, no page numbers; HDSP 2022b, no page numbers; HDSP 2022c, no page numbers; HDLNR 2011, entire; HDSP 2022d, no page numbers; HDSP 2002e, no page numbers) and under management plans from the HDLNR’s Division of Forestry and Wildlife (DOFAW) (Units HI–08, 14, 22, and 23) (DOFAW 2022, entire; HDOFAW 2022, no page numbers; DOFAW 2012, entire; DOFAW 2022, no page numbers; DOFAW 1992, entire). In general, management efforts include habitat protection, light pollution mitigation, outreach activities on sea turtle conservation, control of predators such as feral ungulates, mongoose, dogs, and cats.

(5) Central South Pacific DPS – American Sāmoa Department of Marine and Wildlife Resources

The American Sāmoa Department of Marine and Wildlife Resources (DMWR) leads sea turtle stranding response in all units in the Manua Island Group and Aunuʻu Island. Nest monitoring occurs in units AS–03 to AS–05 that are managed under A Comprehensive Strategy for Wildlife Conservation in American Sāmoa (DMWR 2005, entire).

(6) Central West Pacific DPS – Guam Division of Aquatic and Wildlife Resources

Guam Department of Agriculture (GDoA) leads majority of the territorial lands under the Guam Wildlife Action Plan (GDAWR 2016, entire). Other units also managed by GDoA are the Tumon Bay Marine Preserve (GU–04; Guam Visitor Bureau 2004, pp. 4–5), Piti Bomb Holes Marine Preserve (GU–06; Guam Coastal Management Program 2016, entire), and Guam Territorial Seashore Park (GU–10 and GU–14; Guam 1978, entire; GDoAg 2013, entire). GDoA has partnered with the community to create Haggan Watch, where volunteers assist GDoA to monitor sea turtle nesting activity and threats on all the territorial lands or lands managed by GDoA for conservation (Mazzei 2017, no page number). Other ongoing efforts in Guam in addition to habitat protection and sea turtle nesting surveys include seasonal beach clean-up activities, reforestation, light pollution mitigation, outreach activities on sea turtle conservation, and stranding response.

(7) Central West Pacific DPS – Northern Mariana Islands Department of Land and Natural Resources

The Northern Mariana Islands Department of Land and Natural Resources (DLNR) and the Division of Coastal Resources Management manages majority of the commonwealth lands with the CNMI Sea Turtle Program under the Wildlife Action Plan for the Commonwealth of the Northern Mariana Islands 2015–2025 (CNMI 2015, entire) and the Public Shoreline Access Guide for Saipan, Tinian, and Rota (CNMI 2015, pg. vi). The following units are also managed by the CNMI DLNR under the Management Plan for the Bird Island Wildlife Conservation Area and Bird Island Marine Sanctuary (*MP–03;* CNMI 2007a, entire), the Management Plan for the Managaha Marine Conservation Area (*MP–04;* CNMI 2005, entire), and the Management Plan Kagman Wildlife Conservation Area and Forbidden Island Marine Sanctuary (CNMI 2007b, entire). The CNMI Division of Environment manages the Laolao Bay Conservation Area under the Laolao Bay Conservation Action Plan (*MP–05;* CNMI 2009, entire). Other ongoing efforts in the CNMI in addition to habitat protection and sea turtle nesting surveys include seasonal beach clean-up activities, reforestation, light pollution mitigation, outreach activities on sea turtle conservation, and stranding response.

5. *State, Territory, or Commonwealth Laws that May Provide Protections/ Conservation*

The following wildlife laws by the states where the green turtle occurs provide some benefits to the species and are considered part of the baseline because these benefits will continue with or without critical habitat designation.

North Atlantic DPS – Florida Fish and Wildlife Conservation Commission and Florida Department of Environmental Protection

In Florida, green turtles are protected under multiple statutes. Florida's Marine Turtle Protection Act (379.2431, Florida Statutes) restricts take, possession, disturbance, mutilation, destruction, selling, transference, molestation, and harassment of marine turtles, nests, or eggs. Protection is also afforded to green turtle habitat. A specific authorization from FWC staff is required to conduct scientific, conservation, or educational activities that directly involve marine turtles in or collected from Florida, their nests, hatchlings, or parts thereof, regardless of the applicant's possession of any federal permit under the Florida Marine Turtle Permit Rule (Chapter 68E-1, Florida Administrative Code (F.A.C.)).

The FWC also issues permits for activities involving marine turtles in Florida under authority granted to the state through a Cooperative Agreement with the USFWS under Section 6 of the U.S. Endangered Species Act. All activities relating to marine turtles must be authorized under subsection 379.2431(1), Florida Statutes.

The FDEP's Coastal Management Program is comprised of 24 statutes that protect and enhance the state's natural, cultural, and economic coastal resources. These include protections for fish and wildlife, giving particular attention to those species defined as endangered or threatened. Florida's Joint Coastal Permit Program regulates coastal construction activities on Florida's natural sandy beaches, ensuring that construction activities do not degrade water quality or damage marine resources.

Under Florida's Marine Turtle Protection Act (379.2431, Florida Statutes), any application for a FDEP permit or other type of approval for an activity that affects marine turtles or their nests or habitat is subject to conditions and requirements for marine turtle protection as part of the permitting or approval process. The FDEP may condition the nature, timing, and sequence of construction of permitted activities to provide protection to nesting marine turtles and hatchlings and their habitat pursuant to section 161.053(4). If the department is considering a beach restoration permit, beach renourishment, or inlet sand transfer project and the applicant has had an active marine turtle nest relocation program or the applicant has agreed to and has the ability to administer a program, the department may not restrict the project timing. If appropriate, the

department, in accordance with the applicable rules of the FWC, shall require as a condition of the permit that the applicant relocate and monitor turtle nests that would be affected by beach restoration, beach renourishment, or sand transfer activities. Such relocation and monitoring activities shall be conducted in a manner that ensures successful hatching. This limitation on the department's authority applies only on the Atlantic coast of Florida.

To protect, preserve, and manage Florida's sandy beaches and adjacent coastal systems, the Florida Legislature adopted the Florida Beach and Shore Preservation Act, contained in Parts I and II of Chapter 161, Florida Statutes. The act provides three interrelated programs that the FDEP to protect the state's sandy beaches: the Coastal Construction Control Line; Beach Management Funding Assistance; and Beaches, Inlets and Ports programs. Coastal habitat affected by critical erosion is typically restored through beach restoration/nourishment projects. Projects must apply for a joint coastal permit (JCP) through the Beaches, Inlets and Ports Program (BIPP). Activities that require a JCP include beach restoration or nourishment; construction of erosion control structures such as groins and breakwaters; public fishing piers; maintenance of inlets and inlet-related structures; and dredging of navigation channels that include disposal of dredged material onto the beach or in the nearshore area. BIPP also processes Environmental Resource Permitting (ERPs) for navigational dredging of deepwater ports. These projects generally are below the mean high water line and extend into the sovereign submerged lands and are likely to affect the distribution of sand along the beach.

The FDEP's Coastal Construction Control Line (CCCL) Program protects coastal resources from improperly located and designed structures and activities that can destabilize the beach and dune system, cause erosion, expose upland property to storm damage or interfere with public access. In addition, coastal construction activities must be designed and conducted in a manner that protects sea turtles and dune plants. The CCCL program applies special siting and design criteria to construction, excavation, and related activities to minimize impacts to the beach and dune system.

The State of Florida developed the Model Lighting Ordinance for Marine Turtle Protection Rule (62B-55, F.A.C.) to guide local governments in creating lighting ordinances. Changing to sea turtle compatible lighting has been accomplished at the local level through voluntary compliance or by adopting appropriate regulations. Of the 27 coastal counties in Florida where sea turtles are known to nest, 22 have passed beachfront lighting ordinances in addition to 58 municipalities (*https://myfwc.com/conservation/you-conserve/lighting/ordinances/*) (FWC 2022, entire). Local governments have realized that adopting a lighting ordinance is the most effective method to address artificial lighting along the beachfront. While a majority of coastal local governments and counties have adopted beachfront lighting ordinances, compliance and enforcement is lacking in some areas.

North Atlantic DPS – Puerto Rico Department of Natural and Environmental Resources
Green turtles in Puerto Rico are protected by Law #241 known as the "Nueva Ley de Vida Silvestre de Puerto Rico" (New Wildlife Law of Puerto Rico). The purpose of this law is to protect, conserve, and enhance both native and migratory wildlife species; by declaring property of Puerto Rico all wildlife species within its jurisdiction, regulate permits, regulate hunting activities, and regulate exotic species. In 2004, the Puerto Rico DNER approved the "Reglamento para Regir el Manejo de las Especies Vulnerables y en Peligro de Extinción en el Estado Libre Asociado de Puerto Rico" (Regulation 6766 to Regulate Manage of Threatened and Endangered Species in Puerto Rico). The green turtle is included in the list of protected species and categorized as endangered. This regulation under Article 2.06 prohibits collecting, cutting, removing, among other activities, listed animals within the jurisdiction of Puerto Rico.

North Atlantic DPS – Puerto Rico Environmental Quaility Board (EQB)
In 2008, Law 218-2008 mandated the EQB to establish a program for the control and prevention of light pollution in Puerto Rico. By 2016, the EQB approved Regulation 8786 for the Control and Prevention of Lighting Pollution which clearly established public policy and classes to categorize illumination regulations in Puerto Rico. A specific class was included for sea turtle areas along any coastline that provides nesting habitat. This law and regulation applies to existing and new constructions, and is intended to develop new strategies to eliminate excessive lighting in all areas, particularly in beach zones. For example, for sea turtle nesting areas, this Regulation requires that lights have a 70 degree cut off in addition to being sea turtle friendly lights.

South Atlantic DPS – Virgin Islands Department of Planning and Natural Resources
Green turtles in the U.S. Virgin Islands are protected by the Virgin Islands Code, Title 12 – Chapter 2; Protection of Indigenous, Endangered and Threatened Fish, Wildlife and Plants of the Endangered and Indigenous Species Act of 1990. Section 105 of this Chapter prohibits the harassment, injury or killing, or the attempt to do the same, or sell or offer for sale any specimen, or parts or products of an endangered or threatened species.

Central North Pacific DPS – Hawai'i Department of Land and Natural Resources
Hawai'i Revised Statutes Chapter 195D is titled, Conservation of Aquatic Life, Wildlife, and Land Plants. This is the State of Hawai'i's endangered species law and is equivalent to the Federal Act, except that it provides greater protection to listed plants by: (1) prohibiting take (harassing, harming, injuring, killing, collecting, or attempting to collect) any listed plant species, regardless of land ownership jurisdiction (HRS §195D-4(e)) unless authorized under a State of Hawai'i license, and (2) such issuance of a license must not be likely to cause loss of genetic representation of an affected population of any endangered, threatened, proposed, or candidate plant species (HRS §195D-4(G)). All species listed as endangered or threatened under the Federal Act are listed under Chapter 195D. The Hawai'i DLNR's Division of Forestry and

Wildlife implements Chapter 195D, in processing Hawai‘i incidental take licenses, safe harbor agreements, and reviewing other state-issued permits for effects to listed species. Chapter 195D also requires that for a take exemption license to be issued the cumulative impact of the activity, which is permitted and facilitated by the license, must provide a net recovery benefit to the species (HRS §195D-30). These state protections are important for green turtles by prohibiting actions that can harm, injure, kill, or otherwise disturb sea turtles without a permit.

Central South Pacific DPS – American Sāmoa Department of Marine and Wildlife Resources
None.

Central West Pacific DPS –Northern Marianas Islands Department of Natural Resources
CNMI has Public Law No. 2-51, the “Fish, Game, and Endangered Species Act” (1981). This Act established a Fish and Wildlife Division in the CNMI Department of Natural Resources to provide for the conservation of fish, game, and endangered species. The statute provides the Division with enforcement authority to protect green turtles from illegal hunting and disruption to nesting sites.

Central West Pacific DPS – Guam Division of Aquatic and Wildlife Resources
The purpose of the Endangered Species Act of Guam is to authorize the protection and conservation of endangered and threatened species ecosystems, develop and provide for a conservation program, acquire lands or habitats for the conservation of species, and ensure that actions of departments and agencies of the government of Guam do not jeopardize the existence of threatened or endangered species (Guam Code Annotated Government Operations, Chapter 63, Article 2; *http://www.guamcourts.org/compileroflaws/GCA/05gca/5gc063.pdf*). The Endangered Species Act of Guam states that it is illegal to capture, harass, possess, buy, sell, or transport any species that is Federally listed, including any part of green turtles such as the eggs, shells, shell jewelry, and meat.

6. Local Government Conservation Efforts

The following are ongoing conservation efforts by local governments that provide some benefits to the green turtle and are considered part of the baseline because these activities will occur with or without critical habitat designation.
*NOTE: Efforts in Puerto Rico, St. Croix (USVI), State of Hawai‘i, U.S. Territories of Guam and American Sāmoa, and the Commonwealth of the Northern Mariana Islands are listed under the “State Efforts and State Land Management” section, above.

North Atlantic DPS – **Brevard County:** Brevard County established a county ordinance that restricts lighting on the beach for new development, existing development, and publicly owned structures (Brevard County 2022a, entire). The ordinance also prohibits public motorized vehicles on the beach, campfires, and any transient lighting during nesting season. Brevard

County has a Coastal Management chapter and a Conservation Element chapter within their comprehensive plan. The Coastal Management plan states that the County will implement a beach and dune management program that protects, enhances, and restores a naturally functioning beach system when funds are available (Brevard County 2022b, p. 4). This plan also prohibits new shoreline hardening structures (Brevard County 2022b, p. 5). The Brevard County (2022c, p. 30) Conservation Element chapter 1 specifies beach renourishment projects will be designed to not disturb sea turtle nesting.

***North Atlantic DPS* – City of Boca Raton, Palm Beach County:** The City of Boca Raton established City ordinances that restricts lighting on the beach for new development, existing development, and publicly owned structures. New or redevelopment proposals need to submit a complete sea turtle lighting plan to the City for review (City of Boca Raton 2022, sec.23-242). The City also funds and participates in the Sea Turtle Nesting Program established to comply with Florida DEP regulations (City of Boca Raton 2020a, p. 6). The City of Boca Raton has a Conservation Element chapter in their comprehensive plan that addresses the continuation and support of funding for the Boca Raton Sea Turtle Conservation and Research Program as well as for a beach renourishment and dune stability/restoration program (City of Boca Raton 2020b, pp. 4–7).

***North Atlantic DPS* – City of Sanibel, Lee County:** The City of Sanibel established extensive City ordinances that protect the beach and dune habitat, including prohibition of engine powered vehicles, fires without permits, and destruction or removal of coastal components and artificial light that is visible from the beach (City of Sanibel 2022a, Sec. 74-182). The City of Sanibel also has ordinances that specify lighting restrictions for marine turtle protection (City of Sanibel, 2022b, Sec. 126-1000). The City of Sanibel Comprehensive Plan restricts beach driving and prohibits hardened structures that primarily reflect wave energy (City of Sanibel 2013, pp. 37–40). Bowman's Beach Park (owned by Lee County but managed by the City of Sanibel) Wildlife Habitat Management Plan (Loflin 2009, p. 6) indicates continual marking and protection of marine sea turtle nests. The City of Sanibel (n.d., entire) has a Silver Key Management Plan that establishes an agreement with Sanibel Captiva Conservation Foundation to monitor sea turtle nests for protection, provide education programs, and conduct environmental assessments and habitat management. The City also hosts an informational sea turtle page (*https://www.mysanibel.com/departments/natural-resources/protecting-our-beaches/sea-turtles*) on their website for public educational purposes.

***North Atlantic DPS* – City of Satellite Beach, Brevard County:** The City of Satellite Beach established sea turtle nesting and lighting ordinances to include coastal lighting system regulations, regular inspections, restricting construction during sea turtle nesting season, and promoting public education (Satellite Beach 2022a, entire). The City signed an agreement with Florida Power and Light Company to transition to turtle-friendly lighting where necessary (Satellite Beach 2021a, entire). The City also established a sea turtle fund program where the monetary fines from ordinance violations goes toward assistance with appropriate lighting systems, educational materials, and other reasonable efforts to protect sea turtle populations

(Satellite Beach 2022a, entire). The City also established a week in February focused on sea turtle education; staff conduct workshops and develop/share educational and outreach material (Satellite Beach 2021b, entire). The City has also signed a 1-year agreement (September 2021 – August 2022) with the USDA to conduct predator control mechanisms around the City (Satellite Beach 2021c, entire). A grant agreement between the City of Satellite Beach and the Sea Turtle Conservancy was established to create and display educational signage along three city parks and 13 public beach accesses (Satellite Beach 2022b, entire).

***North Atlantic DPS* – Flagler County:** Flagler County established a county ordinance that restricts lighting on the beach for new development, existing development, and publicly owned structures (Flagler County 2021a, Sec. 6.05.00). The County also has an ordinance that prohibits vehicular traffic on the coastal beaches (Flagler County 2021b, Sec.7-3). The County established both a Conservation Element and a Coastal Management Element in their 2011 Comprehensive Plan stating that they will promote protection of natural areas, including shoreline and dune restoration (Flagler County 2011a, p. 7). The Flagler County Coastal Management Element document protects sea turtles by prohibiting nest disturbance, controlling lighting, and restricting beach cleaning activities during nesting season. Beach renourishment projects are also limited to the non-nesting season (November-May) (2011b, pp. 8 and 44).

***North Atlantic DPS* – Indian River County:** Indian River County has established a county ordinance that enacts lighting restrictions on the beach for new development, existing development, and publicly owned structures (Indian River County 2022, entire). The County also has a Conservation Element section in their Conservation Plan. This section includes Policy 7.7: which establishes compliance inspections during nesting season, public education requirements, and monitoring of nesting activities; and prohibits nighttime construction during nesting season (Indian River County 2010, p. 134).

Indian River County also developed an HCP to minimize and mitigate impacts of the County's issuance of permits authorizing the construction of emergency (temporary) coastal armoring structures in areas used by nesting sea turtles on 22.3 mi (35.9 km) of beaches, and received a section 10(a)(1)(B) incidental take permit from the USFWS in 2004. The Indian River County HCP includes measures minimizing potential impacts to green turtles through several mechanisms, which include pre-project proactive planning, stringent pre-construction assessments and permitting, implementation of construction precautions during the nesting season, relocation of known sea turtle nests that would be affected by construction, and requirements for post-construction monitoring during the nesting season. Mitigation measures to offset unavoidable take have included protection of beachfront property through previous acquisition, implementation of a predator control program, and systematic sea turtle nesting surveys. The HCP is located at: *https://www.ircgov.com/publicworks/coastal/HCP.pdf*.

***North Atlantic DPS* – Martin County:** Martin County has established several ordinances for the protection of sea turtles. The County prohibits beach horseback riding and fires on the beach during nesting season (Martin County 2021a, entire). The County also requires submission of a

sea turtle protection plan for approval on any development that involves coastal construction. The sea turtle protection plan incorporates lighting restrictions, constriction periods, and promotes protective/mitigative measures on sea turtle impacts (Martin County 2021a, entire). Martin County's Coastal Management Element in the Comprehensive Plan reinforces the sea turtle ordinances as well as places restrictions on beach renourishment projects to not diminish the extent or quality of nesting habitat or result in excessive turbidity in near-shore reef formations (Martin County 2021b, policy 8.1E.13).

***North Atlantic DPS* – Palm Beach County:** Palm Beach County implements several actions that benefit sea turtles along the coastline. Article 14 of the Unified Land Development Code specifies the Sea Turtle Protection Lighting Plan that is required by all new development, as well as standards for existing development, window tenting requirements, limitations of beach obstructions, prohibition of sand removal, and informational sign requirements (Palm Beach County 2021a, entire). The County also implements a Coastal Management Element and Conservation Element in the Comprehensive Plan. The Coastal Management Element protects sea turtles through coordination of educational, regulatory, conservation, and research means and through enforcement of Article 14 (Palm Beach County 2020a, p. 8). Palm Beach County has established a Conservation Element Chapter that specifies the protection and preservation of native ecosystems and reinforces the Natural Areas Ordinance and the Sea Turtle Protection/Sand Preservation Ordinance (Palm Beach County 2020b, p. 5). The County also established a Shore Protection Plan (Palm Beach County 2014, entire). This plan specifies that construction occurring on the beach must be completed by May 1st of a given year and that monitoring is required for sea turtles, nesting, and lighting issues. The County will participate in renourishment and dune restoration projects when necessary. Palm Beach County has a Lake Worth Lagoon Management Plan that describes lagoon habitat management and restoration and includes a public education program, sea turtle monitoring efforts, and research projects focused on the relationship between water quality, seagrass abundance, and sea turtle health (Palm Beach County 2021b, entire).

***North Atlantic DPS* – Sarasota County:** The County enforces several county ordinances in Sarasota County Article XXIII: Marine Turtle Protection Chapter (Sarasota County 2022a, Sec. 54). This ordinance establishes the coastal lighting standards and prohibits motorized vehicles, and campfires on the beach. Transient lighting or illumination of nesting sea turtles or hatchlings and overnight temporary structures, such as beach chairs, are also prohibited. The ordinances also restrict construction during nesting season. The County conducts public education efforts to inform residents about sea turtle policies. Sarasota County has also developed an Environmental Systems chapter in their Comprehensive Plan, which establishes nourishment regulations, sea turtle monitoring efforts, public education awareness, and a policy to fund a beach/dune protection and restoration program (Sarasota County 2011, p. 71). Sarasota County has established a Caspersen Beach Park Management Plan (Sarasota County 2021, entire) that explains how County staff conduct predator trapping during nesting season and describes the County's Sea Turtle Protection Program that coordinates sea turtle monitoring, volunteers, and public education and outreach efforts. Sarasota County has a partnership with Mote Laboratory

& Aquarium for both sea turtle surveys and nesting protections (Sarasota County, 2022b, entire), as well as a contract for the rapid removal of stranded sea turtles and marine mammals floating or beach-cast in Sarasota County (Sarasota County 2021b, entire).

***North Atlantic DPS* – St. Lucie County:** St. Lucie County has established ordinances that protect sea turtles and their habitats, including regulations on design and position of coastal structures and restrictions of motorized vehicles, campfires, and horseback riding on beaches. The ordinances also set standards for coastal lighting restrictions and require a Sea Turtle Protection Plan for coastal development (St. Lucie County 2022, Sec. 6.04.02). St. Lucie County has a Coastal Management Element chapter in their Comprehensive Plan that identifies the continuation of the Hutchinson Island Coastal Area Protection Ordinance and the Sea Turtle Protection Regulations (St. Lucie County 2019, p. 1). It also supports and assists with protections of beach and dune habitat and participation in dune restoration when funding is available (St. Lucie County 2019, pp. 7–8).

***North Atlantic DPS* – Walton County:** Walton County has enacted ordinances that regulate lighting on the beach for new development, existing development, public spaces, and Eglin Air Force Base (Walton County 2022a, entire). Walton County allows permitted vehicles on the beach during sea turtle nesting season; however, beach driving is prohibited from 10:00pm – 8:00am during nesting season (Walton County 2022b, Sec. 22-57). Walton County has a Coastal Management Element and Conservation Element Chapter in their Comprehensive Plan that establishes a Coastal Protection Zone to restrict beach and dune encroachment from development and encourages the restoration of beach and dune habitat (Walton County 2011a, pp. 3–4). Walton County also coordinates with State and Federal organizations to implement wildlife regulations and emphasizes public education and beach and dune habitat protection and restoration (Walton County 2011b, p. 8). Walton County Beaches Habitat Conservation Plan covers beaches outside of the State Park, and includes sea turtle nest monitoring, nest protection from armoring construction, artificial light management, education, and land acquisition (Walton County 2011c, pp. 123–125, 147–152). These measures apply to both private and other lands within green turtle proposed critical habitat areas and are intended to minimize and mitigate impacts to nesting and hatchling green turtles because of future County-authorized emergency beach armoring.

C. Federal Agencies And Other Project Proponents That Are Likely To Consult With The USFWS Under Section 7 For The Listing Of The Subject Species Absent The Critical Habitat Designation

In the baseline scenario, section 7 of the Act requires Federal agencies to consult with the USFWS to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of the green turtle.

Specifically for terrestrial (nesting or basking) behaviors, some of the Federal agencies and projects that would likely go through the section 7 consultation process whether or not critical habitat is designated, include the following:

- **Animal and Plant Health Inspection Service:** control and management of invasive, harmful, or overabundant species; predator control to benefit target ecosystems or species.
- **Department of Defense:** operation, maintenance, and upgrades of military property and infrastructure, including training and testing; and unexploded ordnance management.
- **Federal Emergency Management Agency:** alternations to both habitats and developments to increase coastal resiliency and/or to facilitate recovery of human communities following disasters or emergencies (such as coastal storms). Emergency consultation may also be conducted during or shortly after a disaster, for example to stage emergency response equipment in green turtle habitat, to transit through habitat as part of the emergency response, or retrieve orphaned vessels, containers, or other items from habitat.
- **Federal Energy Regulatory Commission:** non-Federal activities that require Federal authorization, such as liquefied natural gas facilities and associated pipeline infrastructure.
- **Federal Highway Administration:** transportation infrastructure maintenance and upgrades.
- **Federal Aviation Administration:** operation, management, and upgrades of airports and air traffic control systems.
- **National Aeronautics and Space Administration:** rocket and drone launches; drone and aircraft flights; recreational beach uses (e.g. swimming, sunbathing, and ORVs); beach renourishment and seawall repair; protected species management; facility maintenance and construction, and educational use.
- **National Park Service:** infrastructure maintenance or upgrades, habitat or species management, research, and changes to visitor use policies or regulations.
- **U.S. Army Corps of Engineers (Corps):** federally-funded coastal engineering, such as beach nourishment, dredging, shoreline stabilization, and habitat restoration; non-Federal activities that require Federal permits, such as coastal engineering, coastal development (e.g., residential, commercial, recreational infrastructure), transportation infrastructure (e.g., docks, piers, ports, roads, rail lines), utility and energy infrastructure, habitat restoration, habitat and species management (e.g., mosquito control), and aquaculture.
- **U.S. Coast Guard:** response actions associated with cleanup of hazardous substances in the coastal and marine environments; authorization of fireworks displays.
- **U.S. Fish and Wildlife Service (USFWS), National Wildlife Refuges (NWR):** land acquisition, infrastructure maintenance or upgrades, habitat or species management, research, and changes to visitor use policies or regulations.

D. What Types Of Project Modifications Are Currently Recommended Or Will Likely Be Recommended By The USFWS To Avoid Jeopardy (i.e., The Continued Existence Of The Species)?

1. *What Types Of Project Modifications Might The USFWS Make During A Section 7 Consultation To Avoid Jeopardy?*

- Prevent vehicle use on or modification of the beach/dune environment during the sea turtle nesting or hatching season (see nesting date ranges, which may vary by DPS).
- Prevent removal of native dune vegetation.
- (Within the Central North Pacific DPS) Have a biologist familiar with sea turtles conduct a visual survey of the project site to ensure no basking sea turtles are present.
    - If a basking sea turtle is found within the project area, cease all mechanical or construction activities within 100 ft (30 m) until the animal voluntarily leaves the area.
    - Cease all activities between the basking turtle and the ocean.
- Remove any project-related debris, trash, or equipment from the beach or dune if not actively being used. Do not stockpile project-related materials in the intertidal zone, reef flats, sandy beach and adjacent vegetated areas, or stream channels.
- Avoid nighttime work during the nesting and hatching season.
- Minimize the use of lighting on or near beaches and shield all project-related lights so the light is not visible from any beach.
    - If lights cannot be fully shielded or if headlights must be used, fully enclose the light source with light filtering tape or filters.
- Incorporate design measures into the construction or operation of buildings adjacent to the beach to reduce ambient outdoor lighting, such as:
    - Include tinting or automatic window shades for exterior windows that face the beach;
    - Reduce the height of exterior lighting to below 3 ft (0.9 meter (m)); point lights downward or away from the beach; and
    - Minimize light intensity to the lowest level feasible and, when possible, include timers and motion sensors.
- In certain circumstances, if nests are located adjacent to the work area, such nests shall be clearly identified and a 10-ft (3-m) square roped off buffer established that includes an unobstructed path seaward from the nest to the water.
- Conduct educational programs for and distribute educational materials to residents and visitors to minimize disturbance to nesting sea turtles, nests, and emerging hatchlings.

- Conduct work outside of the main part of the sea turtle nesting season.
- Use beach compatible sand.
- Conduct monitoring and remediation for sand compaction and escarpment formation.
- Site coastal construction projects, including coastal armoring structures, as far landward as practicable to minimize impacts to nesting habitat, nesting sea turtles, nests, and emerging hatchlings.
- For sloped geotextile revetment armoring structures, ensure a minimum of 3 ft (0.9 m) of beach compatible sand over the entire structure to be present prior to and maintained throughout each sea turtle nesting season.

IV. WHERE CRITICAL HABITAT IS DESIGNATED, WILL THE OUTCOME OF SECTION 7 CONSULTATIONS IN OCCUPIED HABITAT BE DIFFERENT THAN IN UNOCCUPIED HABITAT?

This question is not applicable, as all of the proposed critical habitat for the green turtle is considered occupied. Upon designation of critical habitat, all future consultations for actions where both the species and the PBFs of green turtle critical habitat may be present and may be affected within the action area will require analysis by the action agencies to assess the potential effects of the actions. The additional analysis of effects to critical habitat would not be required in the absence of a critical habitat designation.

V. INCREMENTAL IMPACTS ANALYSIS

A. Adverse Modification Analysis

Explain Additional Recommendations the USFWS Will Make When Considering Both Jeopardy And Adverse Modification.

We anticipate some but minimal incremental effects from critical habitat designation. Any difference between measures to avoid adverse modification and jeopardy are likely to overlap. To avoid adverse modification, the USFWS would require conservation measures that would avoid any recurring, semi-permanent, long-term, or permanent changes to the PBFs of the unit or that would affect the use of the unit by green turtles. Similar to project modifications to avoid jeopardy, project modifications to avoid adverse modification would be moving the project or actions to another area and/or modifying the project or action that would lead to potential negative changes to critical habitat. Otherwise, required measures include: implementing BMPs that protect the PBFs for the area, considering cumulative and indirect effects on PBFs, monitoring of PBFs on site to show that they are not affected by the project/action, creating replacement habitat or replacing the functionality of the area affected, protecting other designated critical habitat areas to increase use of these areas to replace the area lost (e.g., habitat

restoration, predator control), and providing permanent access to and use of the area for green turtles.

Our recommendations typically would be to avoid disturbing beach and dune habitats that are known to support appreciable numbers of green turtles during the nesting and hatching seasons (which vary across the DPSs) or areas where turtles congregate to bask.

1. *What Federal Agencies Or Project Proponents Are Likely To Consult With The USFWS Under Section 7 Due To Designation Of Critical Habitat Alone? What Kinds Of Additional Activities Are Likely To Undergo Consultation With Critical Habitat?*

   None. No additional Federal agencies or activities are expected to be subject to consultation due to critical habitat designation alone.

   As listed under section C (above), and based on past and known upcoming projects, a wide variety of Federal agencies and projects would likely go through the section 7 consultation process whether or not critical habitat is designated, including for activities such as dredging, beach nourishment, shoreline protection (e.g., groin construction, jetty construction or reconstruction, pier construction or reconstruction, or coastal armoring), transportation (e.g., highway or bridge construction), development (including oil and gas exploration activities), military training activities, unexploded ordnance management, emergency response, general management of Federal lands, habitat restoration, and lighting. Since the Distinct Population Segments were listed, over 271 formal and informal consultations (489 if also considering technical assistance) have been carried out for the green turtle in those counties where critical habitat is proposed (see Table 4 for breakdown within each DPS). Most action agencies are aware of the need to consult on green turtles. Coordination between the USFWS and action agencies regarding green turtles and its habitat is generally robust. Thus, we do not expect any new Federal agencies to begin consulting, nor any new activity types to become subject to consultation, as a result of a critical habitat designation.

2. *Provide Examples Representing Typical Recommendations To Avoid Adverse Modification Of Critical Habitat Applicable Across A Broad Suite Of Projects. Where Significant Uncertainty Exists, Provide Ranges Of Potential Outcomes.*

   Conservation measures/RPAs to avoid adverse modification of critical habitat are expected to be similar to ongoing measures/alternatives to avoid or minimize adverse effects to the species, including avoidance/minimization of take by way of harm, in terms of timing projects to avoid impacting turtles during basking, nesting, incubation, hatching, hatchling emergence from the sand and transit to sea; however lasting impacts to the habitat should be considered and those mitigated for appropriately prior, during and after the project. Examples include: (1) Avoiding removal of vegetation, fence installation, construction activities, and light installation within 164 ft (50 m) inland from the high tide; designating a buffer zone of

an additional 66 ft (20 m) for a total of 230 ft (70 m) setback and buffer to minimize indirect impacts from a project; and planting salt tolerant native shrubs or trees within the buffered zone. *Note: setback recommendations do not apply if an existing road is located between the beach and project site; in this case, the road serves as the boundary of the beach.

3. *What Types Of Project Modifications Might The USFWS Make During A Section 7 Consultation To Avoid Destruction Or Adverse Modification Of Critical Habitat That Are Different From Those For Avoiding Jeopardy?*

Recommended project modifications would be the same for jeopardy and adverse modification avoidance. In both cases, the goals would be to maintain habitat to support existing populations and ensure connectivity to nearby populations. Viable habitat would promote success at all stages of the nesting process (e.g., access to the beach; appropriate sand consistency and composition for digging, incubation, and hatchling emergence; lighting conditions that reduce disorientation of nesting females and hatchlings). Several of the above-listed recommendations to avoid jeopardy address habitat (e.g., hard shoreline stabilization, beach nourishment, dredging, vegetation planting, beach raking); we expect these same recommendations to avoid destruction/adverse modification of critical habitat.

The majority of section 7 consultations are sand placement projects. Sand placement activities can have negative effects on the suitability of nesting habitat, most likely because of changes in physical beach characteristics (e.g., beach profile, sediment grain size, beach compaction, frequency and extent of escarpments). Sand placement projects conducted under the USFWS's Statewide Programmatic Biological Opinion for the U.S. Army Corps of Engineers planning and regulatory sand placement activities (including post-disaster sand placement activities) (USFWS 2015, entire) in Florida and other individual biological opinions throughout the green turtle's nesting range in the U.S include required terms and conditions that minimize incidental take of turtles and, if incorporated, the sand placement projects are not expected to result in adverse modification of critical habitat. Although sand placement activities are considered uncommon for the proposed critical habitat units outside of Florida, the same terms and conditions can be used and applied to these units when necessary.

USFWS has recommended various measures to minimize the impact of construction on green turtles and loggerhead critical habitat in the terrestrial environment. Measures in consultation to avoid and minimize the impact of construction activities include, but not limited to:

- Monitor sea turtle nesting, and clearly mark and buffer any active sea turtle nests (or areas to avoid take);
- Conduct work outside of the main part of the sea turtle nesting season;
- Use beach compatible sand;
- Conduct monitoring and remediation for sand compaction and escarpment formation;

- Implement lighting management to minimize the potential for disorientations of nesting turtles and hatchlings;
- Site coastal construction projects, including coastal armoring structures, as far landward as practicable to minimize impacts to nesting habitat, nesting sea turtles, nests, and emerging hatchlings, and increase day or night monitoring activities;
- For sloped geotextile revetment armoring structures, ensure a minimum of 3 ft (0.9 m) of beach compatible sand over the entire structure to be present prior to and maintained throughout each sea turtle nesting season; and
- Conduct educational programs for and distribute educational materials to residents and/or visitors to minimize disturbance to nesting sea turtles, nests, and emerging hatchlings.

4. *If The Species Is Only Seasonally Or Sporadically Present Would The Outcome Of The Consultation Be The Same If Present At Time Of Section 7 Consultation?*

   The outcome would be similar even without presence of the turtles because there are state laws covering requirements of types of sand required for beach renourishment projects. The USFWS would still consult with project proponents and evaluate any potential detrimental effects (short- and long-term) from any proposed project that may occur on nesting or basking habitat, even if the species is not present at a particular time of the year. The consultation outcome could be the same as if turtles were present, but it would depend on the magnitude of a given project. If green turtles are not present at the time of a project action, nesting surveys may not be needed, but (dependent on the project location) surveys for other listed or sensitive species may still be needed. The currently recommended conservation measures or terms and conditions should cover most section 7 consultations. In addition, there are a number of state laws to protect sea turtles that project proponents would also need to comply with (see Section III (B) (5), above).

5. *What Project Proponents Are Likely To Pursue HCPs Under Section 10 due to The Designation Of Critical Habitat?*

   We currently to do not expect any new HCPs as a result of this designation.

B. Unoccupied Areas or Areas Where the Species is Not Present

Does the designation include unoccupied habitat that was not previously subject to the requirements of section 7?

No. All units proposed (including all areas within units that are comprised of multiple polygons) were occupied by the species at the time of listing.

C. Behavior Changes

Will the designation provide new information to stakeholders resulting in different behavior?

1. *Describe Actions Taken By Stakeholders As A Result Of Critical Habitat.*

   No behavior different from that caused by listing is expected as a result of critical habitat designation. A wide variety of protections for the green turtle in its U.S. range predate the proposed designation of critical habitat. These protections began in 1976, when the green turtle was originally listed. Protections under sections 4, 9, and 10 of the Act; direction (in section 7(a)(1)) to Federal agencies to use their authorities to conserve listed species; and section 7 requirements for Federal agencies to consult with the USFWS on any proposed activity.

2. *Describe How Local Agencies Might Change Project Requirements as a Result of Critical Habitat Designation.*

   While it is possible that some states and local governments might change project requirements (e.g., increase regulatory protections), we have no information indicating this will happen.

3. *How Many New Consultations May Result From The Critical Habitat Designation Alone?*

   We do not expect any new consultations that may result from the critical habitat designation alone. The Federal agencies that are likely to request consultation on green turtle critical habitat are the same agencies that are likely to request consultation if no critical habitat is designated. However, there may be Federal agencies that will need to reinitiate consultation on actions covered by consultations that are not yet completed or for which there is continuing Federal agency involvement (e.g., reinitiating consultation on Vieques NWR regarding unexploded ordnance management).

4. *How Many New HCPs May Be Undertaken Or Reinitiated As A Result Of The Critical Habitat Designation Alone?*

   Section 10 HCPs specifically address take to listed species from non-Federal activities and provide mitigation to offset such take. We do not expect any new or reinitiated HCPs as a result of this designation alone.

5. *Will There Be Changes In Permitting Processes By Other State Or Local Agencies Or Other Land Managers Result Of Critical Habitat Designation?*

   While it is possible that some states and local governments might decide to increase regulatory protections of some areas based on their designation as green turtle critical habitat, we have no information indicating this will happen.

D. Administrative Efforts

How Much Additional Administrative Effort Will Be Spent To Address Adverse Modification In Section 7 Consultations With Critical Habitat? Estimate The Difference Compared To Baseline.

Increases in administrative efforts are expected and will vary by the degree to which the proposed activities are expected to impact habitat.

Section 7 consultations include USFWS, a Federal action agency, and in some cases, a third-party applicant. While consultations are required for activities that involve a Federal nexus and may affect a species regardless of whether critical habitat is designated, the designation may increase the effort for consultations if the project or activity in question may affect critical habitat. Administrative efforts for consultation may therefore result in baseline and incremental impacts.

In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs:

- **Additional effort to address adverse modification in a consultation:** The additional administrative effort required to consider critical habitat is considered an incremental impact of the designation.
- **Re-initiation of consultation to address adverse modification:** Costs of re-initiating the consultation, including all associated administrative and conservation effort costs are considered incremental impacts of the designation.
- **Incremental consultation resulting entirely from critical habitat designation:** Based on our review of prior consultations, the USFWS, has not identified any consultations that would result solely from the designation of critical habitat for green turtles.

Examples:

(1) Some consultations do not involve any potential habitat impacts. Consultation documents for such projects are likely to require only one or two sentences to document that destruction or adverse modification of critical habitat will not occur.

(2) Some consultations involve projects with only minor or short-lived habitat impacts; for example, projects involving a few vehicle trips that might result in rutting, or temporary

stockpiling of equipment or material in beach habitat. Consultation documents for such projects are likely to require only one or two paragraphs to document that destruction or adverse modification of critical habitat will not occur.

(3) Some consultations involve projects with substantial or long-lived habitat impacts; for example, most coastal engineering or beach modification projects. Consultation documents for such projects are likely to require from a few paragraphs to a few pages to assess and evaluate the potential for the project to result in destruction or adverse modification of critical habitat.

E. Probable Projects

1. Land Use Sectors Within The Critical Habitat Designation Area

A list of known probable projects that may affect proposed critical habitat or require consultation is given in Enclosure 5.

2. Identify The Economic Activities That May Be Affected By the Designation of Critical Habitat

Table 4: Economic Activities Potentially Affected By Critical Habitat Designation for Green Turtles (terrestrial—nesting or basking habitat only).

Economic Activity Potentially Affected	Unit(s) Containing This Economic Activity	Federal Nexus? Y or N or Sometimes	Energy Supply, Distribution, or Use Affected? Y or N
Agriculture	None	N/A	N/A
Aquaculture	None	No (in water activity handled by NOAA Fisheries)	N/A
Border Protection	None	No	N/A

Economic Activity Potentially Affected	Unit(s) Containing This Economic Activity	Federal Nexus? Y or N or Sometimes	Energy Supply, Distribution, or Use Affected? Y or N
Conservation/ Restoration	FL–01 through 23; All in PR (PR–01, 02, 03) & all in Vieques (VPR–01 through 07); All in St. Croix (USVI–01 through 08); HI–01 through 08, HI–10 through 14, 16, 18, 22–24, 26, 30, 31; AS–1, 03, 04, 06; MP–03, 04, 05, 08, 09; GU–01, 02, 04, 06, 07, 10, 14	PR/USVI: Yes & Sometimes AS: Sometimes; HI: Y; MP: Sometimes	No
Development	FL–02 through 10, FL–14 through 21; USVI–06; MP–04, 07, 08, 09; HI–11; AS–03 & 05; MP–04, 07, 08, 09; GU–04, 05, 06	Sometimes (e.g., FEMA)	No
Dredging[1]	HI–09, 12, 14; Potential in FL units	Sometimes	No
Fire Management	None	No	N/A
Flood Control	HI–11, 14	Sometimes	No
Hydropower	None	No	No
In-water construction	None	No (in water activity managed by NOAA Fisheries)	N/A
Mining	None	No	No
Oil and gas	None	No	No

Economic Activity Potentially Affected	Unit(s) Containing This Economic Activity	Federal Nexus? Y or N or Sometimes	Energy Supply, Distribution, or Use Affected? Y or N
Recreation	FL–01 through 23; All in PR; Vieques (05–07); all in St. Croix, USVI; all in FL; HI–01 through 31; AS–03, 04, 05; MP–03, 04, 05, 08, 09; GU–01 through 09, 11	Sometimes	No
Renewable energy	HI–11	Yes	No
Shoreline Stabilization	FL–01 through 23; HI–02, 07 through 13, 15, 17, 19, 20, 22, 25, 26; AS–03; MP–04, 07; GU–05, 06, 09, 13	Yes	No
Transportation	HI–08, 09, 11, 12, 14, 17; AS–03; MP–07; GU–05, 06; Potential in FL units	Yes	No
Utilities	Potential in FL units	Yes	No
Water quality	None	No	No
OTHER – UXO Management	Vieques (VPR–01 through 05); HI–11	Yes	No

1 – Dredging is an off-shore activity (i.e., in-water) and predominantly addressed by NOAA Fisheries. However, some beaches where sea turtles nest are affected by this activity by sand placement, heavy equipment, and lighting.

3. Consultation History Within The Critical Habitat Designation Area

Since the green turtle DPSs were listed in 2016, there have been approximately 101 formal consultations, 246 informal consultations, and 363 technical assistance (e.g., species lists, review of NEPA documents) involving the species (see Table 5, below to distinguish between each DPS). The formal and informal consultations include activities such as dredging, beach nourishment, development, recreation, emergency response, management of Federal lands, and habitat restoration. This is not an all-inclusive list but rather a list of the more common activities that are consulted on.

Table 5: Approximate number[1] of formal consultations, informal consultations, and technical assistance for green turtles since 2016 within counties that have proposed critical habitat units.

State	Formal Consultations Since 2016	Informal Consultations Since 2016	Technical Assistance Since 2016[2]
North Atlantic DPS			
Florida	49	160	50
Puerto Rico	1	4	3
TOTAL	**50**	**164**	**53**
South Atlantic DPS			
TOTAL - St. Croix	**0**	**13**	**1**
Central North Pacific DPS			
Northwest Hawai‘i	2	12	2
Hawai‘i (main islands)	6	48	236
TOTAL	**48**	**60**	**238**
Central South Pacific DPS			
Palmyra Atoll	0	0	0
American Sāmoa	0	1	9
TOTAL	**0**	**1**	**9**
Central West Pacific DPS			
Guam	3	5	37
Northern Mariana Islands	1	2	17
Other	0	1	8
TOTAL	**4**	**8**	**62**

1 – Some emergency consultations were conducted in Florida and were included in the consultation numbers.

2 – Technical assistance numbers for Florida do not include generation of Species Lists.

VI. CONCLUSION

Each of the five DPSs are treated as a listed entity for the purposes of section 7 consultation under the jeopardy standard. Likewise, each of the five DPSs will have separate and distinct proposed critical habitat designations, which are combined here for administrative purposes. All units within the proposed critical habitat designation contain occupied nesting and/or basking habitat for the green turtle. Because the proposed critical habitat and known species range are identical, any proposed action that would result in a finding of adverse modification would also result in a finding of jeopardy to the species. In this case, we would expect that project modifications or reasonable and prudent alternatives to avoid jeopardy to the species would also avoid adverse modification of the critical habitat.

However, because of the scope and scale of our proposed action to designate critical habitat for the green turtle across five distinct DPSs, depending on the duration and magnitude of the Federal action and its project impacts, it is possible though unlikely, that an incremental impact of critical habitat designation could occur due to (1) the Federal action agency consulting with the USFWS solely on the basis of critical habitat designation when the action agency finds that all project effects are restricted to the green turtle non-breeding season, yet the action occurs within green turtle critical habitat itself; or (2) the section 7 consultation process identifies a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the species. For example, due to limited green turtle monitoring data, action agencies in the Pacific have determined their actions to have no effect on green turtles if activities and their effects (e.g., seawall construction or road maintenance) occur outside the green turtle nesting season. The outcome of these consultations may have incremental economic effects other than simply administrative. The reason these examples may occur in the Pacific and not in the Atlantic is because of the limited green turtle monitoring data in the Pacific and disparate or small (less than 1 ac (0.4 ha)) size of some portions of the critical habitat units (i.e., units comprised of multiple small polygons) in the Pacific, relative to a project's action area.

In conclusion, the USFWS anticipates an increase in administrative effort to address adverse modification if critical habitat is finalized, and possible though unlikely, incremental economic impact due to project modifications (e.g., project relocation, or restoration activities to ensure physical and biological features remain available when green turtles return to nest and/or bask.)

REFERENCES CITED

Available as a separate document/list.